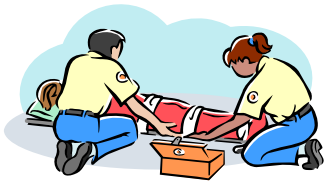

Be Aware, Be Informed, Be Prepared
A Reference Manual

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Acknowledgements

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Disclaimer:

The contents of this manual are intended to assist individuals and families in preparing for a disaster. However, final decisions on preparation for actions are the sole responsibility of individuals. No one knows your needs or can take care of you better than you can-nor does anyone else have that responsibility. Information and examples contained within this manual are provided for illustration and advice only. Therefore, no liability is assumed by the New River Ward of The Church of Jesus Christ of Latter-day Saints for the use or misuse of any information contained in this publication.

Introduction

If Ye Are Prepared Ye Shall Not Fear

This manual was created to assist and strengthen individuals and families as they prepare for and cope with basic emergency situations. We do not know what lies ahead of us in the future. We do know that it is prudent to be prepared and to strive to be self-reliant.

As we begin to assess our temporal preparedness, we should strive to prepare ourselves in the following areas:

- Education and literacy
- Physical health
- Employment
- Food storage and home production
- Resource management
- Spiritual, emotional, and social strength

Recent world events have highlighted the importance of being prepared. While we may not be able to anticipate every need, careful planning and preparation can ease our fears and be a blessing to our families and others in our communities.

Message from the County

In today's world we are all faced with the possibility of many types of disasters, both man made and natural. Regardless of the type, there are some basic things that we can all do to be better prepared. One of those things is, understanding the process by which these disasters will be handled from an emergency services standpoint. While there are many State and Federal agencies designated to deal with these situations, your local government and local emergency services employees and volunteers will be the first to respond to any disaster.

Fortunately Giles County is blessed to have arguably the best emergency services volunteers in the nation. They are loyal, well trained, and committed people, who truly want to serve their fellow man. Over the past four years, through the use of State, Federal, and local tax dollars, your County government has invested more than $700,000 in equipment and communications infrastructure that will provide these volunteers with some of the resources they need to serve you. This coupled with the volunteers' fundraising efforts makes it possible to have the very expensive equipment necessary to serve you in an emergency situation.

While it is impossible to plan for every type of disaster and we know that we will have to adapt as the circumstances dictate, the County does maintain an Emergency Operations Plan. While this plan is more detailed than is necessary for this publication, we believe that it is very important that you understand those whom you will be dealing with in the event of a disaster and the basic processes that would take place to get the help you need.

Your first call in any emergency situation will always be to the County's E-911 center, where you will talk to a dispatcher. From here the dispatcher takes information and then contacts the appropriate individuals and agencies to deal with your particular situation. In the event of a disaster, dispatchers will likely be inundated with calls for assistance which will trigger a call to the County's Emergency Services Coordinator, which in this case is the County Administrator. The County would then activate the (Emergency Operations Center 540-921-2525) and shelters as needed. These shelters will typically be located in a school where large scale food preparation and emergency power are available. The EOC will be the outlet for the dissemination of information and should be used for all non emergency questions. After assessing the situation, if it is determined that the disaster is more than the County's resources can adequately address, there will be a declaration of a local disaster. This will trigger the availability of State resources, which includes the Virginia Department of Emergency Management (V.D.E.M). If after the disaster is assessed by V.D.E.M. to be more than the State's resources can handle, the Governor will request a Federal Disaster Declaration which would allow for the use of FEMA, Homeland Security, and other Federal resources.

All of this being said, it should be clearly understood that this is typically a very long process that can take several days before any real Federal assistance is provided. This has been very well demonstrated with hurricane Katrina along the Gulf Coast and is a misconception of many people that Federal help is readily accessible. When large scale Federal assistance is needed, it takes a great deal of time for manpower, equipment, and supplies, to be mobilized and then moved into an area. This is why it is so important for people to be prepared to deal with situations and to care for themselves until help arrives. Much of this manual is designed to do just that, to help you help yourself.

Chris McKlarney, County Administrator

Public Schools Emergency Response Plan

The following is the Giles County School Crisis, Emergency Management, Medical Emergency Response Plan found in their policy manual. Each school is responsible for their own detailed plan. We strongly encourage families with children to contact your local school for information on their individual emergency plan.

Each school will develop a written school crisis, emergency management and medical emergency response plan as defined below. The Department of Education and the Virginia Center for School Safety will provide technical assistance to the school division in the development of the plan. In developing this plan, schools may consult the model school crisis, emergency management, and medical emergency response plan developed by the Board of Education and the Virginia Center for School Safety.

Each school will annually conduct school safety audits as defined below. The results of such school safety audits will be made public within 90 days of completion. The School Board may withhold or limit the release of any security plans and specific vulnerability assessment components as provided in the Virginia Freedom of Information Act, VA Code section 2.2-3705.2. Each school will maintain a copy of the school's safety audit, which may exclude such security plans and vulnerability assessment components, within the office of the school principal and will make a copy of such report available for review upon written request.

"School crisis, emergency management, and medical emergency response plan" means the essential procedures, operations, and assignments required to prevent, manage, and respond to a critical event or emergency, including natural disasters involving fire, flood, tornadoes, or other severe weather; loss or disruption of power, water, communications or shelter; bus or other accidents; medical emergencies, including cardiac arrest and other life threatening medical emergencies; student or staff member deaths; explosions, bomb threats; gun, knife, or other weapons threats; spills or exposures to hazardous substances; the presence of unauthorized persons or trespassers; the loss, disappearance or kidnapping of a student; hostage situations; violence on school property or at school activities; incidents involving acts of terrorism and other incidents posing a serious threat of harm to students, personnel, or facilities.

"School safety audit" means a written assessment of the safety conditions in each public school to (1) identify and, if necessary, develop solutions for physical safety concerns, including building security issues and (2) identify and evaluate any patterns of student safety concerns occurring on school property or at school-sponsored events. Solutions and responses will include recommendations for structural adjustments, changes in school safety procedures, and revisions to the School Board's standards for student conduct.

Each school will maintain records of regular safety, health and fire inspections that have been conducted and certified by local health and fire departments. The frequency of such inspections will be determined by the local School Board in consultation with the local health and fire departments. In addition, the school administration will:

1) Equip all exit doors with panic hardware as required by the Uniform Statewide Building Code (13VAC5-61-10 et seq.); and
2) Conduct fire drills at least once a week during the first month of school and at least once each month for the remainder of the school term. No fire drills will be conducted during periods of mandatory testing required by the Board of Education. Evacuation routes for students shall be posted in each room. At least one simulated lockdown and crisis emergency evacuation activity should be conducted early in the school year.

Each school will have contingency plans for emergencies that include staff certified in cardiopulmonary resuscitation (CPR), the Heimlich maneuver, and emergency first aid. In addition, the school administration will ensure that the school has:

1) Written procedures to follow in emergencies such as fire, injury, illness, and violent or threatening behavior. The plan will be outlined in the student handbook and discussed with staff and students during the first week of each school year;
2) Space for the proper care of students who become ill; and
3) A written procedure for responding to violent, disruptive or illegal activities by students on school property or during a school-sponsored activity.

Adopted: October 14, 2004
Revised: June 30, 2006

Legal Refs.: Code of Virginia, 1950, as amended, §§ 2.2-3705.2, 22.1-79.8.
Acts 2006, c. 164.
8 VAC 20-131-260.

GILES COUNTY PUBLIC SCHOOLS

6/06 VSBA

Resources

Telephone Numbers

General Emergencies	911
Sheriff's Office	921-3842
Administrators Office	921-2525
Health Department	921-2892
Social Service	726-8315
Eastern Elementary	626-7281
Macy McClaugherty	921-1363
Narrows Elementary	726-2391
Giles High School	921-1711
Technology Center	921-1166
Narrows High School	726-2384
Giles Memorial Hospital	921-6000
Montgomery Regional Hospital	951-1111
NRV Medical Center	731-2000
Blue Ridge Poison Control Center	800-451-1428
National Poison Control Center	800-222-1222
Child Abuse Hotline	800-422-4453
Women's Resource Center	639-9592

Websites

Food Storage:

Emergency Essentials	www.beprepared.com
Lehman's Hardware	www.lehmans.com
Honeyville Grain	www.honeyvillegrain.com
Walton Feed	www.waltonfeed.com

Disaster Preparedness:

www.cbsnews.com/digitaldan/disaster/disasters.shtml (lists many disaster links)

www.ready.gov

www.providentliving.org

www.redcross.org

www.weather.com

www.pandemicflu.gov

Internet Safety

www.getnetwise.org

www.safekids.com/safeteens/why.htm

www.internetfilterreview.com

www.cyberangels.org/homefront/index.html

www.webwisekids.com

www.nationalcoalition.org

Books

The NEW Passport To Survival. 12 Steps to Self-Sufficient Living by Rita Bingham

Skills for Survival: How Families Can Prepare by Esther Dickey

Storey's Basic Country Skills: A Practical Guide to Self-Reliance by John Storey and Martha Storey

Putting Food By (Plume) by Janet Greene

Ball Blue Book of Preserving by Alltrista Consumer Products

Emergency Food Storage & Survival Handbook: Everything You Need to Know to Keep Your Family Safe in a Crisis by Peggy Layton

Seed to Seed: Saving our Vegetable Heritage by Suzanne Ashworth

The New Seed Starter's Handbook by Nancy Bubell

The Internet

Computers have literally changed the world, including the way we work, learn, and communicate. Part of the computer world is the Internet – a powerful way for gaining access to the abundant knowledge stored throughout the world. Unfortunately, it's also a gateway into a world of deceit and evil. Because the Internet is becoming so essential in school and in work situations, we need to learn to safely access and use the good things the Internet can bring to our families.

Some guidelines for using the Internet:

- Your computer has an OFF switch. You may have heard horror stories about someone coming upon a pornographic site, and when they try to exit it, the computer cycles through a series of disgusting pictures. This doesn't need to happen. If, at any time, you accidentally come across anything you do not want to view, just turn the computer off. This is a guaranteed way to leave the site immediately.
- You are in control. In general, you have to be looking for inappropriate sites to find them. Only on rare occasions will you access an inappropriate site accidentally. Accidental access is usually caused by misspelling a Web address.
- Educate parents. Young people seem unafraid of computers and have become adept at using them. Take time to help your parents better understand the computer and the Internet if they aren't already familiar with them.
- Keep the computer in a public place. Set up the computer in a place where the family regularly can see what is happening on the screen. Don't have a computer in your child's bedroom or away from the traffic flow in your home.
- Don't believe everything you read. Just as with books or magazines, you can't believe everything. Being in print doesn't make it a fact. The same is true of the Internet. Just because it's on the Internet doesn't make it true. Consider the source of the information.
- Don't give out personal information. Family members should not give out their address, telephone number, social security number, credit card number, name, or location without a parent's permission. Pedophiles can locate children with as little as two obscure pieces of information such as a school mascot and their first name.
- Discuss family rules for computer use. Decide as a family how much time can be spent on the computer and how it will be used.
- Don't post pictures on a public Web site. Use e-mail to send photos to friends and family. Don't put family pictures on a Web site that anyone can access.
- Install a filter on your computer that sifts out harmful material.
- Use Chat Rooms, Newsgroups, Instant Messenger, etc…..with caution.
- Check the material your child has been viewing. There are several ways this can be done: media player (last used files and play-lists), address bar, toolbars auto complete functions – like Google, recycling bin, run history, and application history logs.
- Be aware of your children's school policies regarding Internet use. Make changes if you don't feel they meet your standards.

Make a Plan

After a major disaster, it is unlikely that emergency response services will be able to immediately respond to everyone's needs, so it's important to be prepared to take care of yourself and your family. Plan to be on your own for at least the first 72 hours. Talk with your family about potential disasters and why it's necessary to prepare for them. Involve each member of your family in the planning process.

- Make sure everyone knows where the 72 hour kit is located.
- Have a flashlight and a pair of shoes under each person's bed in case there is an earthquake during the night. Use a plastic bag tied to the leg of the bed to keep these items from moving during an earthquake.
- Plan where to meet after a disaster if your home becomes unsafe. Choose two places, one just outside your home and one outside your neighborhood, in case you are told to evacuate. Be sure your gas tank is always at least half full.
- Determine the best escape routes from your home. Try to identify two escape routes.
- Make sure each household member knows who your family's out-of state contact is.
- Make sure all household members know when and how to turn off the utilities.
- Practice your evacuation routes, Drop, Cover & Hold and Stop, Drop & Roll drills.
- Teach each member of your household how to use a fire extinguisher.
- Create emergency response cards for each of your family members.
- Take into account the special needs of children, seniors, people with disabilities, family members who don't speak English and pets.

Extra Tips for Seniors and People with Disabilities

- Set up a Personal Support network – Designate someone to check on you in an emergency and to help with evacuation or sheltering-in-place.
- Personal Care Assistance – If you receive assistance from a home healthcare agency or in-home support provider, find out how the provider will respond in an emergency. Designate backup or alternative providers that you can contact in an emergency.
- For Persons using a wheelchair: Plan for how you will evacuate in an emergency and discuss it with your care providers. If you use a motorized wheelchair, have a manual wheelchair as a backup.
- For Persons who are Blind or Visually Impaired: Keep an extra collapsible cane by your bed. Attach a whistle to the cane; use it if you need to attract attention. Exercise caution when moving around after an earthquake; items may fall and block paths that are normally unobstructed.
- For Persons who are Hearing Impaired: Keep extra batteries for your hearing aids with emergency supplies. Consider storing your hearing aids in a container attached to your nightstand or bedpost, so you can locate them quickly after a disaster.

Extra Tips for Parents

- Teach your children their basic personal information so they can identify themselves and get help if they become separated from a parent or guardian. Prepare an emergency card with information for each child, including his/her full name, address, phone number, parent's work number and out of state contact.
- Know the policies of the school or daycare center your children attend. Make plans to have someone pick them up if you are unable. Keep your child's school updated with current emergency contact information.
- Make sure each child knows your family's alternate meeting sites and out-of-state contact person.
- Teach children to dial their home telephone number and 9-1-1.
- Teach children what gas smells like and advise them to tell an adult if they smell gas.
- Warn children never to touch wires on poles or lying on the ground.
- Role-play with children to help them remain calm in emergencies and to practice basic emergency responses such as evacuation routes, Drop, Cover & Hold and Stop, Drop & Roll

Extra Tips for Pet Owners
The following information has been prepared by the Humane Society of the United States in cooperation with the American Red Cross:

Our pets enrich our lives in more ways than we can count. In turn, they depend on us for their safety and well-being. Here's how you can be prepared to protect your pets when disaster strikes.

Be Prepared with a Disaster Plan
The best way to protect your family from the effects of a disaster is to have a disaster plan. If you are a pet owner, that plan must include your pets. Being prepared can save their lives.

Different disasters require different responses. Whether the disaster is a hurricane or a hazardous spill, you may have to evacuate your home.

In the event of a disaster, if you must evacuate, the most important thing you can do to protect your pets is to evacuate them, too. Leaving pets behind, even if you try to create a safe place for them, is likely to result in their being injured, lost, or worse. So prepare now for the day when you and your pets may have to leave your home.

1. Have a Safe Place to Take Your Pets
Red Cross disaster shelters **CANNOT** accept pets because of states' health and safety regulations and other considerations. Service animals that assist people with disabilities are the only animals allowed in Red Cross shelters. It may be difficult, if not impossible, to find shelter for your animals in the midst of a disaster, so plan ahead. Do not wait until disaster strikes to do your research.

- Contact hotels and motels outside your immediate area to check policies on accepting pets and restrictions on number, size, and species. Ask if "no pet" policies could be waived in an emergency. Keep a list of "pet friendly" places, including phone numbers, with other disaster information and supplies. If you have notice of an impending disaster, call ahead for reservations.
- Ask friends, relatives, or others outside the affected area whether they could shelter your animals. If you have more than one pet, they may be more comfortable if kept together, but be prepared to house them separately.
- Prepare a list of boarding facilities and veterinarians who could shelter animals in an emergency; include 24-hour phone numbers.
- Ask local animal shelters if they provide emergency shelter or foster care for pets in a disaster. Animal shelters may be overburdened caring for the animals they already have as well as those displaced by a disaster, so this should be your last resort.

2. Assemble a Portable Pet Disaster Supplies Kit
Whether you are away from home for a day or a week, you'll need essential supplies. Keep items in an accessible place and store them in sturdy containers that can be carried easily (duffle bags, covered trash containers, etc.). Your pet disaster supplies kit should include:

- Medications and medical records (stored in a waterproof container) and a first aid kit.
- Sturdy leashes, harnesses, and/or carriers to transport pets safely and ensure that your animals can't escape.
- Current photos of your pets in case they get lost.
- Food, potable water, bowls, cat litter/pan, and can opener.
- Information on feeding schedules, medical conditions, behavior problems, and the name and number of your veterinarian in case you have to foster or board your pets.
- Pet beds and toys, if easily transportable.

3. Know What to Do As a Disaster Approaches

- Often, warnings are issued hours, even days, in advance. At the first hint of disaster, act to protect your pet.
- Call ahead to confirm emergency shelter arrangements for you and your pets.

- Check to be sure your pet disaster supplies are ready to take at a moment's notice.
- Bring all pets into the house so that you won't have to search for them if you have to leave in a hurry.
- Make sure all dogs and cats are wearing collars and securely fastened up-to-date identification. Attach the phone number and address of your temporary shelter, if you know it, or of a friend or relative outside the disaster area. You can buy temporary tags or put adhesive tape on the back of your pet's ID tag, adding information with an indelible pen.

You may not be home when the evacuation order comes. Find out if a trusted neighbor would be willing to take your pets and meet you at a prearranged location. This person should be comfortable with your pets, know where your animals are likely to be, know where your pet disaster supplies kit is kept, and have a key to your home. If you use a pet sitting service, they may be available to help, but discuss the possibility well in advance.

Planning and preparation will enable you to evacuate with your pets quickly and safely, but bear in mind that animals react differently under stress. Outside your home and in the car, keep dogs securely leashed. Transport cats in carriers. Don't leave animals unattended anywhere they can run off. The most trustworthy pets may panic, hide, and try to escape, or even bite or scratch. When you return home, give your pets time to settle back into their routines. Consult your veterinarian if any behavior problems persist.

Caring for Birds in an Emergency
Birds should be transported in a secure travel cage or carrier. In cold weather, wrap a blanket over the carrier and warm up the car before placing birds inside. During warm weather, carry a plant mister to mist the birds' feathers periodically. Do not put water inside the carrier during transport. Provide a few slices of fresh fruits and vegetables with high water content. Have a photo for identification and leg bands. If the carrier does not have a perch, line it with paper towels and change them frequently. Try to keep the carrier in a quiet area. Do not let the birds out of the cage or carrier.

Reptiles
Snakes can be transported in a pillowcase but they must be transferred to more secure housing when they reach the evacuation site. If your snakes require frequent feedings, carry food with you. Take a water bowl large enough for soaking as well as a heating pad. When you are transporting house lizards follow the same directions as for birds.

Pocket Pets
Small mammals (hamsters, gerbils, etc.) should be transported in secure carriers suitable for maintaining the animals while sheltered. Take bedding materials, food bowls, and water bottles.

A Final Word
If you must evacuate, do not leave your animals behind. Evacuate them to a prearranged safe location if they cannot stay with you during the evacuation period. (Remember, pets are **NOT** allowed in Red Cross shelters.) If there is a possibility that disaster may strike while you are out of the house, there are precautions you can take to increase your pets' chances of survival, but they are not a substitute for evacuating with your pets. For more information, contact The Humane Society of the United States, Disaster Services, 2100 L Street NW, Washington, DC 20037.

In a statement of understanding, The American Red Cross recognizes The Humane Society of the United States as the nation's largest animal protection organization responsible for the safety and well-being of animals, including disaster relief. The American Red Cross is committed to transforming the caring and concern of the American people into immediate action.

Extra Tips for Large Animal Owners
If you have large animals such as horse, cattle, sheep, goats, or pigs on your property, be sure to prepare before a disaster.

Use the following guidelines:

1. Ensure all animals have some form of identification.
2. Evacuate animals whenever possible. Map out primary and secondary routes in advance.
3. Make available vehicles and trailers needed for transporting and supporting each type of animal. Also, make available experienced handlers and drivers.
   Note: It is best to allow animals a chance to become accustomed to vehicular travel so they are less frightened and easier to move.
4. Ensure destinations have food, water, veterinary care, and handling equipment.
5. If evacuation is not possible, animal owners must decide whether to move large animals to shelter or turn them outside.

Emergency Contacts

Local Contact		
Address		
Telephone Work #		
Home #		
Cell #		
Out of Area Contact		
Address		
Telephone Work #		
Home #		
Cell #		
Family Reunion Procedures:		
First Meeting site (just outside of your home)		
Alternate Meeting site (outside of your neighborhood)		
Medical & Insurance Information:		
Doctor		
Telephone number		
Policy		
Pharmacy		
Telephone number		
Policy		
Medical Insurance		
Telephone number		
Policy		
Homeowners/Renters Insurance		
Telephone number		
Policy		

Medications		
Medication List for		
Name of medication		
Dosage		
Reason for taking		
Prescription #		
Allergies (to drugs, food, etc.)		
Medication List for		
Name of medication		
Dosage		
Reason for taking		
Prescription #		
Allergies (to drugs, food, etc.)		
Medication List for		
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Dosage		
Reason for taking		
Prescription #		
Allergies (to drugs, food, etc.)		
Medication List for		
Name of medication		
Dosage		
Reason for taking		
Prescription #		
Allergies (to drugs, food, etc.)		
Medication List for		
Name of medication		
Dosage		
Reason for taking		
Prescription #		
Allergies (to drugs, food, etc.)		

Home Safety Checklist

Fire Safety

□ Smoke detectors and carbon monoxide detector present and working with batteries checked

□ Chimneys clear of soot and debris

□ Fire extinguisher inspected and mounted

□ Catch screen in front or fireplaces, wood stove and open heaters

□ Furnace checked and free of flammable materials i.e. rags, paper, clutter, etc

□ Flammable material and poisonous items properly stored

□ Curtains and furniture at least 12 inches from baseboard or portable heaters

Electrical Safety

□ Electrical overload protection

□ Extension cords do not carry more than proper load

□ Electrical cords in good condition not frayed

General Safety

□ Sturdy handrails

□ All steps in good repair (not loose, broken, missing, or worn in places)

□ Small rugs and runners stay put

□ Shower or tub has a non-skid surface: mat, decals, or abrasive strips

□ Secure water heater

□ Water heater thermostat set at 120° F or lower

□ Store firearms unloaded in locked cabinets with shells in separate locked area

□ Gutters clean

□ House clear from any hanging tree limbs, leaves, and debris close by

□ Check neighborhood for water hazards, construction, unfenced pools, and irrigation canals, storm drains

Know where shut off valves are for and how to turn off

□ Electricity
□ Gas
□ Water

72 Hour Kits

The objective of the Family 72-Hour Emergency Preparedness Kit is to have, previously assembled and placed in one location, all of those essential items you and your family will need during a 72-hour time period following an emergency. When an emergency occurs you will probably not have the luxury of going around the house gathering up needed items, especially if you have to evacuate your home on short notice.

Take time now to gather whatever your family needs to survive for three days (72 Hours) based upon the assumption that those items are the only possessions you will have. Store these kits in a closet near the front door or some other easily accessible place where they can be quickly and easily grabbed on the way out the door.

Pack all items in plastic Zip-loc type bags to keep them dry and air tight. This will prevent a liquid item from spilling and ruining other items in your kit and keep rain and other forms of moisture away from the items stored.

Keep a list of the dates when certain items need to be reviewed, especially foods, outgrown clothing and medications so that they may be properly rotated.

Emergency supplies are readily available at preparedness and military surplus stores.

Fear may well be responsible for more deaths than exposure, hunger, and injury combined. Realizing you have fears and that these are normal emotions in an unfamiliar situation you will be aware of them and better able to cope with them as they appear. Fears can be expected in any outdoor problem situation. Fear of the unknown and fear of your ability to cope with the situation will be foremost, along with a fear of being alone, darkness, suffering, or death. **Fear is usually based on lack of self-confidence and lack of adequate preparation and experience.** Knowledge and experience (practice sessions), will help to instill confidence and help to control fear.

Container

The container you choose for your kit must be waterproof, have some type of carrying handle, and must be able to be carried easily by family members. The following are good containers: backpack, belt pack, suitcase, polyethylene plastic bucket, duffel bag, trunk or footlocker, plastic garbage cans.

Water

Advised amounts of water for a kit vary. It is recommended a minimum of two quarts per day for each adult. However, a person can survive quite well on less, and the load of carrying six quarts of water with a pack is great. Outdoor survival course veterans agree that a two-liter bottle should be adequate. Water purification tablets or crystals need to be a part of each kit. Refer to Emergency Water Supply for treatment methods and information on portable water filters.

Food

You should include in your kit a three-day supply of non-perishable food. The food items should be compact and lightweight, in sealed packages. MRE's (Meals Ready to Eat) are a good choice because they require little or no preparation. Freeze-dried foods are lightweight but require extra water in your kit. Canned goods are heavy with extra refuse. Plan nutritionally balanced meals, keeping in mind that this is a survival kit. Include vitamins or other supplements, if desired.

Possible foods for a kit might include:

- MRE's
- snack crackers
- hard candy
- dried fruits
- instant oatmeal
- powdered milk

- jerky
- bouillon cubes
- raisins/nuts
- instant rice/potatoes
- dried soups
- gum
- granola bars
- instant pudding
- powdered drink mixes

Also include a mess kit or other compact equipment for cooking and eating. A can opener may also be useful.

Shelter
The objective of shelter is to provide emergency housing. It is extremely important to be physically protected from nature's weather elements. There are many types of shelter that can be easily included in your 72-hour kit. You may want to consider a family tent, backpacker's tent, tube tent, rain poncho, garbage bags, nylon rope or cord, duct tape, space blanket, and space sleeping bag.

Bedding
Bedding should be warm, lightweight, comfortable, waterproof, and compact.

Sleeping bag (2 ½ pound hollow-fill)

You will need some insulation to protect you from the cold ground. Though foam pads are generally thought of as an item of comfort, their true importance is in insulating you from the ground. The best types are "closed cell" foam pads about ⅜ of an inch in thickness. They are very light weight and easily attached to the backpack for carrying. You may also use a poncho, plastic ground cloth, newspapers, leaves, or pine boughs, for insulation but they are not nearly as effective as the closed cell foam pads.

Blankets can be used to make a bed roll, but generally they are not as comfortable or as warm as a sleeping bag. Wool blankets are the best since they retain their warming ability even when wet. However, blankets are very heavy and bulky.

Space blankets and space bags (aluminum coated Mylar) are very efficient at retaining body heat and are a must for every 72-hour kit. Even when used by themselves, without the added benefit of a sleeping bag they will keep you warm during the night. In cold winter weather they may not be entirely comfortable but they will probably keep you warm enough to keep you alive. Being plastic, however, they are impervious to moisture. This is good for keeping out rain, but they also retain sweat and condensation from your breath. You may find that periodically during the night you will have to air them out in order to sleep comfortably. They can also be used during the day to protect from rain, sun, and to retain body warmth.

Clothing
Include in your kit one change of clothing and footwear, preferable work clothing. Anticipate severe weather conditions. If you have a growing family, remember to update clothing sizes and needs at least once a year.

Try to avoid wearing cotton clothing. Tight cotton clothing holds water next to the skin. Wet inner clothing causes freezing. Cotton clothing "wicks" (draws water up the very small individual fibers) thus retaining water and spreading it over the entire body causing loss of body heat at an even greater rate.

Wool clothing is best. Wool is a natural thermostatic insulator that keeps you warm in the winter and cool in the summer. Wool is naturally durable and can withstand rugged and tough wear. Wool also repels water and has the unique property of keeping the body warm even if it does get wet. Wool dries from the inside out and does not "wick". Include two pairs of wool socks- one pair for wearing and one for keeping your feet warm while sleeping.

Fuel
Every family member should have fire starting materials and know how to start a fire. Several of these items should be assembled into a kit and labeled as "fire starting kit." Teach all family members how to use them and let them practice building fires with all methods until they feel totally confident with their ability to do so. Then if an emergency arises, they will not panic or feel overwhelmed or frightened at the prospect of building a fire for their warmth and protection.

Fire Building Sources
Matches. Carry at least two dozen wooden kitchen matches that have been either dipped in wax or nail polish to make them waterproof or carry them in a waterproof container.

Metal match. Waterproof, fireproof, durable, and non-toxic. Will light thousands of fires. Available at sporting goods stores.

Butane lighters. Such as Bic lighters, are excellent ways to light a fire.

Magnesium fire starters are good for starting fires with wet or damp wood. Shave magnesium shavings off of a magnesium block with a pocket knife and then strike a spark from a flint starter with a pocket knife. Magnesium burns exceptionally hot and will ignite almost any combustible material. Works even when wet and can be purchased at most sporting goods stores.

Small magnifying glass. Use to concentrate sunlight onto paper, shredded bark or other tinder.

Flint and steel. A spark from flint and steel (such as an empty lighter or flint and steel striking bar), when directed at dry paper (especially toilet tissue), shredded bark, dry grass or other tinder, if persisted in patiently will work very well to start a fire. This is the most reliable "non-match" method of starting a fire.

Commercial fire starter kits. These come in a variety of styles and fuels.

Steel wool. Fine steel wool (used for scrubbing pots and pans- but not Brillo pads or other types that have soap already impregnated into them) can be used for tinder. Hold two "D" flashlight cells together in one hand (or one 9-volt transistor radio battery) while touching one end of a clump of steel wool to the positive end of the battery and the other end of the steel wool to the negative end of the battery. The current causes the steel wool fibers to incandesce and then produce a flame. It burns very hot and fairly fast so have lots of other tinder to burn once the steel wool ignites.

Candles can be used for warmth, light, and starting fires. To start a fire simply cut a piece of candle about ½ inch in length and place it on top of the tinder. When lit the wax will run over the tinder making it act as a wick and ignite. You can also place small twigs and other easily burnable materials directly into the fame to build a fire.

Car Battery. If you are near your car you can easily put sparks into tinder by attaching any wires to the battery posts and scraping the ends together in the tinder.
Sterno fuel and stoves make an excellent cooking fuel when backpacking or in emergencies. Sterno can be lit with a match or by a spark from flint and steel. Slivers of gelled sterno can be cut from the can and placed on top of tinder and lit with flint and steel or with a match. It burns hot enough to ignite even damp tinder.

Cotton balls and gauze from the first aid kit make excellent tinder and can be ignited with sparks or with matches.

Fuel tablets such as tri-oxane and gelled fuels store well and ignite quickly and easily. Some can be fairly expensive, however.

Butane and propane stoves. These are made especially for backpackers. The fuel is cheaper than sterno, it burns hotter, and it heats better in windy situations than other fuels. Propane, however, is more difficult to light as outside temperatures near zero.

First Aid Kit
Update your first aid skills. Keep your first aid kit well supplied.

Suggested first-aid supplies for 72-hour kit:

- first aid book
- waterproof container
- assortment of band-aids
- gauze pads
- butterfly bandages
- cotton balls
- small roll of gauze
- adhesive tape
- cotton swabs (Q-Tips)
- safety pins
- Pepto-Bismol tablets
- antacid tablets (good for bee sting)
- cold pack
- hydrogen peroxide
- alcohol (disinfectants)
- smelling salts
- medicine dropper tweezers
- alcohol wipes
- Benadryl capsules
- aspirin (promotes healing of burns)
- Tylenol (chewable for children)
- collapsible scissors
- thermometer
- crushable heat pack
- special prescriptions or equipment
- small tube or packets antiseptic cream
- ointment
- small spool thread/two needles

Miscellaneous
Some other miscellaneous items that may be very helpful are:

- light stick
- small flashlight
- extra batteries
- pocket hand warmer
- compact fishing kit
- compass
- pocketknife
- 50 ft. nylon cord
- plastic poncho
- garbage bag
- paper or cards

- pen, pencil
- fine wire
- extra plastic bags
- small scriptures
- favorite songs
- small game, toy, etc.
- spare glasses
- money (small bills and change)
- field glasses
- toothbrush/toothpaste
- metal mirror or CD (can be used for signaling for help)
- comb
- razor
- pre-moistened wipes
- toilet paper
- feminine products
- sunscreen
- soap
- lip balm with sunscreen
- bandana (may be used for hat, washcloth, mask, sling, tourniquet)
- tube soap, bar soap, waterless soap
- identification/medical permission card
- special blanket or such for little people
- portable radio with extra batteries

Family Information Record

In addition to emergency survival supplies you should also collect vital family information. Record and keep it in at least two safe places-a fire resistant "get-away" box that you can take with you if you have to leave the home, and a safe-deposit box at your bank or credit union.

The following items would be useful for you to record and keep in these two locations:

- Genealogy records
- Full name and social security numbers of all family members
- Listing of vehicles, boats etc. with identification and license numbers
- Listing of all charge account card numbers and expiration dates, bank account numbers (both checking and saving), insurance policy numbers, securities, deeds, and loan numbers showing the company name, address and telephone numbers.
- Name, address, and telephone number for each of the following:
    - employer
    - schools
    - fire/paramedics
    - family contacts
    - utility company
    - police
    - doctor
    - hospital
    - attorney
    - civil defense
- Location of important documents
    - insurance policies

- deeds
- securities
- licenses
- loans
- will
- safe-deposit box key
- vehicle titles (pink slips)
- birth/death certificates
- social security I.D. cards
- citizenship papers
- letter of instruction
- tax returns (last 7 years)

Infants

When assembling items for your 72-hour kit be sure to include all necessary items for infants. It would be a good idea to include a separate back pack or other container that holds nothing but infant supplies (which can be surprisingly voluminous). This kit should be kept with the kits of other family members so that it will not be forgotten in a moment of haste. As the baby begins to grow, replace clothing and diapers with the next larger size.

Car Mini-Survival Kit

Your car is frequently your home away from home. Most of us spend many hours in our cars each month. Anything from a jammed-up freeway to a major disaster could force you to rely on your car for short-term shelter and survival. It is a wise practice to keep simple provision for emergencies in your car.

Here are some suggestions of items that you might want to keep in your car:

- An old towel
- Pair of working gloves
- Bottle of fix a flat
- Large screwdriver
- Pair of pliers
- Can of WD-40
- Jumper cables
- Wheel chock
- Emergency road flares
- Flashlight and extra batteries
- Rubber hammer
- Short-handled shovel or spade
- Old scarf or piece of rope
- Small bag of cat litter or rock salt
- Fluorescent safety vest
- Some type of nonperishable food and bottled water
- Lighter/matches
- Basic first aid kit
- Two bread bags and four rubber bands (to keep your sleeves clean)
- If you live in an area prone to cold or blizzards you may want to consider keeping warm blankets or sleeping bags in your car.
- Cell phone so you can call for help

At-Work Survival Kit

Many persons stand a 40 percent chance of being at work when an earthquake or other emergency strikes. A mini-survival kit kept at your place of work could make the hours until you are able to get home more comfortable and safer. This kit could be a duplicate of the car mini-survival kit. Also, make sure that you review your company's emergency plan.

Emergency Water Supply

Health department and public water safety officials use many safeguards to protect the sanitary quality of your daily drinking water. However, this protection may break down during emergencies caused by natural disasters.

During times of serious emergency, the normal water supply to your home may be cut off or become so polluted that it is undrinkable. A supply of stored water could be your most precious survival item!

You and your family may then be on your own to provide a safe and adequate water supply. Remember that typhoid fever, Dysentery, and infectious hepatitis are diseases often associated with unsafe water.

Don't take a chance! Generally, under serious disaster conditions, no water can be presumed safe--all drinking and cooking water should be purified.

Required Amounts of Drinking Water Per Person
A minimum of two quarts and up to one gallon of water is needed per day, depending on the size of the person, the amount of exertion, weather, and perspiration loss. A minimum of seven gallons pure water per person would be needed for a two-week survival supply. With careful rationing, this amount would be sufficient for drinking, food preparation, brushing teeth, etc. Fourteen gallons per person will allow for hygiene care.

Keep an emergency supply of drinking water in plastic containers. Commercially bottled drinking water is available. It stays pure for months and has the expiration date clearly marked on it.

There are several other sources of water if your water supply is turned off--water drained from the hot water tank (usually contains 30 to 60 gallons of usable water), clear water from the toilet flush-tank, if kept constantly clean (not the bowl !), melted ice cubes, canned fruits and vegetable juices, and liquid from other canned goods.

How to Purify Water for Drinking

- If water is cloudy, smelly, or otherwise polluted, strain it through a paper towel or several layers of clean cloth into a container in order to remove any sediment or floating matter.
- Water that is boiled vigorously for five full minutes will usually be safe from harmful bacterial contamination.
- If boiling is not possible, strain the water as above and treat by adding ordinary liquid chlorine household bleach or tincture of iodine. Since liquid chlorine bleach loses strength over time, fresh bleach should be used as a water disinfectant. If the bleach is a year old the amount should be doubled. Two-year-old bleach should not be used as a water disinfectant.
- Other chemical treatments for water purification also include halzone tablets, iodine tablets or crystals.

Number of drops to be added per quart of water:

	Clean	Cloudy
Chlorine Common household laundry bleach	2	4
Tincture of Iodine From medicine chest or first aid kit (2% chlorine) (Rotate your iodine each year to ensure that it will work when you need it)	3	6

Mix thoroughly by stirring or shaking the water in its container. Let it stand for 30 minutes.

A slight chlorine odor should be detectable in the water; if not, repeat the dosage and let the water stand for an additional 15 minutes before using.

Use an eye dropper to add the chlorine or the iodine to the water. Use it only for this purpose.

How to Prepare and Store Bottles of Purified Water

1. Keep the drinking water safe from contamination by carefully storing in clean noncorrosive, tightly-covered containers.
2. Use one-gallon containers, preferably made of heavy opaque plastic with screw-on caps. Plastic milk bottles are not recommended.
3. Sterilize the bottles.
   - Wash bottles with soapy water, then rinse thoroughly.
   - Run about three quarts tap water into one of the containers, and then add ¾ cup bleach to the water.
   - Shake well, turning upside down a time or two so that the stopper will be sterilized also.
   - Let the mixture stand for two to three minutes, then pour it into the next container. You can use the same chlorinated water for several containers to be sterilized.
4. Fill the empty bottle with pure or purified water and seal it tightly, close with cap or stopper.
5. Label with "Drinking Water--Purified", and the date of preparation.
6. Water purification tablets may also be used and are available in drug stores and sporting goods stores. They are recommended for your first aid kit. Four tablets will purify one quart of water.
7. Some stored water may develop a disagreeable appearance, taste, or odor. These properties are not necessarily harmful. Inspect your water supply every few months to see whether the containers have leaked or other undesirable conditions have developed. Replace the water if it becomes contaminated.

Portable Water Purification Equipment

A high quality filter system should possess the following characteristics: light-weight; have fewer parts (less to go wrong); a fine pre-filter; a replaceable or clearable filter; tight, well-made pump; high volume output; quick filtration; should screen out organisms over 0.5 microns (0.2 microns is best).

A system with all of these features may not be inexpensive, however. The cost will usually reflect reliability as well as technology of design.

Always use a filter properly. Use clearest water available, allowing suspended matter to settle out. Use pre-filter if your system has one. Do not allow outlet end of filter come in contact with contaminated water. Be sure vessel you're pumping into is clean.

Resource Management

There are many things to consider to prepare financially. You need to look where you are in your life, decide what direction you want your future to go and prepare accordingly. This will require a self evaluation. The following are suggestions to help you manage your resources:

- **Spend less than you make.** We should avoid debt. There is nothing that will cause greater tensions in life than grinding debt, which will make the debtor a slave to creditors. With the exception of buying a home, paying for education, or making other vital investments, we should avoid debt and the resulting finance charges. We should also exercise extreme caution in the use of credit cards and other consumer debt. Use of multiple credit cards significantly adds to the risk of excessive debt.

- **Recognize That Financial Needs Change over a Lifetime.** The following have been identified as major life events that commonly occur. How you plan and respond to these events can make a major difference in the outcome.
    - Receiving an Education, both primary and secondary
    - Preparing for a career through post-secondary education
    - Entering the job market
    - Serving in the Military
    - Preparing for and entering into marriage
    - Parenting
    - Buying and owning a home
    - Starting a business
    - Preparing for life's crises
    - Being caregivers for both children and aging parents
    - Preparing for retirement
    - Preparing wills or trusts

- **Learn to Save.** During times of prosperity, save up for a day of want. If we save a little money regularly, we will be surprised at how it accumulates. First, we should establish a reserve for emergencies. When an emergency arises, what funds you have on hand may be the only funds you will have access to. Therefore, when you prepare your 72-hour kit, include change for pay phones, some money to purchase items if they are available, and if you have a credit card/debit card, one may be included to use as local retailers may not have access to cash but could take a credit card/debit card. Second, we should strive for home ownership, where possible. Third, we should have adequate insurance to aid in times of emergency. Sufficient medical, homeowner's, automobile, and life insurance will help with the sometimes-overwhelming costs associated with illness, accident, disaster, or death. Fourth, we should set aside money in savings and investment accounts to meet future needs, such as advanced education, and retirement.

- **Honor Financial Obligations.** Honor your debts. Our first obligation is to our families. It is our solemn obligation to do all within our power to provide for them. Our second obligation is to our creditors. When we exercise our agency and choose to become indebted to others, we should do so with a full and honest intent to faithfully repay our obligations in a timely manner.

- **Teach Family Members to Be Wise Temporal Stewards.** As family members grow and mature, they should understand the principles of self-reliance and resource and financial management. Teach them the principles of hard work, frugality, and saving. All members of the family should know where health insurance cards, power of attorneys, wills, life insurance policies, home-owner polices, and etc. are kept. Also, keep a list of account numbers of checking, savings, credit cards, etc. and the bank and financial institution.

With careful planning now, you and your family will be able to enjoy a more secure financial future. Take a few moments to consider some of the following questions:

- Where is my money going?
- How long will it take to pay off my credit card?
- When will my loan be paid off?
- What if I pay a little extra each month on my loan?
- How soon could I pay off all my debts?
- What would my payment be if I borrowed?
- Should I refinance my home mortgage?
- What would be my monthly payment on a new home?
- How much should I save for emergencies?
- How much should I save for retirement?
- Are my current retirement savings adequate?
- How much retirement income will I have if I save regularly?
- How much should I save to reach my goal?
- How much could I have if I saved regularly?
- Would spending a little less and saving a little more make a difference?

Organizing Your Financial Records

Many people struggle every time they open their mail or e-mail. Is this important? Do I need this? Should I keep it? Should I throw it away?

Somewhere between the paper squirrel who saves everything "just in case" and the purger who tosses everything "in the trash" is the organized person for whom keeping records is no big deal. Becoming that organized person is not simple, but taking the steps necessary to get your financial records under control is a task with many rewards — first and foremost, a good night's sleep.

Keys to success

Having an organized approach to financial records can remove much of the stress associated with living in an increasingly complicated world. As children, parents, spouses, partners, investors, citizens, and employees, we all play many roles, each with a trail of paper attached. This information sheet will help you organize your records by touching on these key topics:

- What records should you keep?
- How long should you keep them?
- How should you keep them organized?
- How can you make sure that someone has access to your records in case of emergency?

What to keep

Knowing what records to keep can be as simple as knowing why you need them.

There are many reasons to keep financial records, as described below. In addition to keeping track of papers associated with day-to-day consumer activities such as making purchases and paying down debt, you probably have papers and documents that will only be needed in the event of an emergency, a death in the family, or an unforeseen turn of events.

That's why many experts suggest that you separate your papers by your need to use them, keeping short-term items together and long-term items together.

Immediate needs files would include items from the past year, including

- unpaid bills
- paid bills

- bank statements
- canceled checks
- credit card statements
- health records
- an updated resume or updated employment records
- income tax receipts for deductions, income, etc.
- major purchase receipts
- insurance policies

Your long-term files will include items such as

- bank statements (past 7 years)
- credit card statements (with home improvement expenses)
- canceled checks (past 7 years)
- receipts for home improvements
- warranties and operating instructions for appliances
- income tax records and back-up for previous three years
- gift tax returns
- inheritance papers
- retirement investment statements
- legal papers about formerly owned properties
- reports from trusts
- birth certificates
- social security cards
- burial vault/plot deeds
- wills/living wills
- powers of attorney
- car titles
- house titles/deeds
- investment account statements (If end-of-year statements have all tax information, these are typically the only ones you need to keep.)
- pension plan statements
- annuities statements
- IRA statements
- mutual fund statements
- stocks and bonds

What about taxes

There are basically two types of tax information that you need to be concerned about: information you need in case of an audit and information you need to support your claims of income.

- **Backup for your returns**. While false or fraudulent returns can be pursued forever, the IRS can audit you for up to three years from the date you file your return and can pursue under-reported income for up to six years.

  Keeping tax returns and supporting documents for seven years (because the IRS has six years from when you file to investigate) is a reasonable approach to keeping tax documentation.

- **Exception**: Because many of your important files will double as backup for taxes, if your tax returns contain information about home purchase or sale information, you should keep those records indefinitely.

A rule for keeping your documents: 3yrs – 7yrs - forever

Presuming that you will clean out your immediate and long-term files annually, here are some general guidelines for how long you should keep your documents. Your immediate and long-term files should be cleaned out at least once a year, with your short-term files either destroyed or placed in a long term file.

Be sure to shred any sensitive documents, especially those with account numbers, Social Security, and/or date of birth information.

Keep 3 years

- household bills
- credit card statements
- receipts for minor purchases

Keep 7 years

- canceled checks
- check registers
- bank statements
- pay stubs (If you worked at the same employer all year, your yearend stub should have all your information.)
- tax returns and supporting documentation

Keep forever or until assets are sold

- receipts for home improvements
- receipts for major purchases
- annual investment statements
- gift tax returns
- inheritance papers
- insurance policies
- mutual fund statements
- a copy of your will
- health care proxy forms

Safe deposit box

A safe deposit box can be a secure place to keep certain valuables and important papers, but some important items should not be placed in a safe deposit box.

What should you put in a safe deposit box?

- stock certificates
- coins, stamps, and other collectibles
- auto titles, mortgages, and deeds
- original copies of birth, marriage, and death certificates
- adoption papers
- divorce and child custody papers
- videotapes or photos of contents of your home for insurance

What you shouldn't put in a safe deposit box.

- original copies of wills
- powers of attorney
- insurance policies
- anything that may be needed in the event of death

A word of caution on safe deposit boxes
In the event of a death, safe deposit boxes may be sealed (inaccessible even to those with a key). While it makes sense to keep some original documents in a safe deposit box (see previous list), only copies of those documents needed in the event of death, i.e., wills, powers of attorney, etc., should be kept in a safe deposit box.

Providing a key – a letter of instruction
Chances are a relative, a neighbor, or a landlord already has a key that would let them into your home should an urgent need — fire, water main break, blackout, and electrical emergency — arise. Leaving a key with someone makes good sense. Likewise, you should create a "key" to your important financial records and make sure someone you trust has possession of it.

Besides leaving a "key" in your house with your financial files, make sure at least one person you trust knows where it might be. Even a file marked "financial key" or "in case of emergency" in your financial files could be helpful to someone charged with piecing together your financial records.

Your financial key is simply a list of where your important papers and files are, and who to call for more information about them. It may be a simple list like this:

Item	*Where to find*	*Whom to contact*
birth certificates	safe deposit box	Nora Joyce, Esq.
health care proxy	safe deposit box	Evan Gross, M.D.
will	firebox in attic	Nora Joyce, Esq.

Remember, regardless of how organized you are, if your papers cannot be found, they will not be useful to someone who may be trying to help in a crisis. Whether it's a spreadsheet or a list, having a "key" in the hands of someone who has access to your records can be extremely helpful in a time of emergency.

Key Points
- 3 years is how long the IRS has to initiate an audit.
- 6 years is how long the IRS has to pursue underreported income.
- Forever is how long the IRS can pursue claims of fraud.
- Death and taxes may be the most obvious reasons for keeping financial records. But keeping financial papers organized can also help you:
    - make timely payments
    - prove ownership
    - dispute errors
    - document claims
    - prove bills and debts have been paid
    - provide evidence of purchases and transactions

Resources for additional information
Hemphill, Barbara, Kiplinger's Taming the Paper Tiger at Home.
Barbara Hemphill is one of the country's leading organizational experts. For more information on her books and seminars, please visit www.productiveenvironment.com

Ernst & Young's Financial Planning for Women: A Woman's Guide to Money for All of Life's Major Events, (John Wiley & Sons, Inc. 1999, $16.95).

Urban Programs Resource Network / University of Illinois
www.urbanext.uiuc.edu

When Your Income Drops
In today's economy, many circumstances can lead to a sudden loss of income: loss of job, layoffs or cutbacks, reduced income, loss of support from a spouse, illness, death of a spouse, or divorce. Any of these can be a serious blow to families who are struggling to survive economically in difficult times.

Very often the reduction in a family's income is not expected, and the natural reaction is panic. If your family suffers loss of income, try to remain calm and don't waste time and energy blaming yourself. Instead, take control of the situation by doing the best you can with the resources available to your family.

This publication offers suggestions for helping you make day-to-day decisions with the money you do have, cope with creditors, maintain control over your finances, and protect your family's welfare.

Take Stock of Your Situation
Uncertainty and financial neglect can increase the stress associated with income loss. Take some time, therefore, to study your current financial and family resources.

Once you know and understand your situation, you can develop a plan for making the most of family and community resources. A little knowledge goes much further than either imagining the worst or ignoring reality and neglecting bills.

Family Resources
Begin by listing the incomes of all earners in the household. How long can you depend on those incomes? Are there other family members who are potential income earners, if only for this period of financial instability? When income is uncertain, it is better to err on the conservative side in your estimates. You may wish to make a few different projections of expected income--low, medium, and high.

Next, calculate the current market value of each item you own. Use today's value (what you could sell it for), not what you paid for it. Look at everything you own with the idea that its market value might help pay your bills for awhile. Be realistic, however, in assessing what items you would be willing to part with. Also, consider any funds which you have in reserve, such as savings or life insurance cash value.

Make a list of your family's nonfinancial resources that can be used to cut costs, traded for needed goods and services, or used to produce income. It is likely that each family member can contribute in some way to running the household more economically. Be imaginative in assessing all of your resources and how they can best be used in hard economic times.

Family Financial Obligations
Once you've listed your family's resources and potential resources, consider your expenses. Expenses can be divided into those that are fixed, at least in the short term, and those that are variable or flexible.

Fixed expenses, or debts, are those for which your family is obligated to pay a set amount. Examples of fixed expenses are mortgage or rent payments, consumer or automobile loans, and charge cards. List all of your fixed expenses by answering the following questions for each:

- Who is the creditor? (Record name, address, and telephone number.)
- What is the balance due?
- What is the interest rate?
- What is your payment?
- How often and when is your payment due?
- Are you behind in payments? How much?
- Has the creditor started any action against you?

Next, calculate your family's monthly flexible expenses. Flexible expenses are harder to estimate, so use checkbooks or cancelled receipts to gain an accurate accounting of these expenses. Be realistic about which items are actual needs and which items can be reduced or eliminated. The worksheet at the end of this publication can help you organize your flexible expenses.

Reorganize Family Spending

A reduction or loss of income usually forces a family to alter spending patterns. While this is painful at best, the pain can be minimized if family members communicate openly and if the family works out and follows a spending plan.

While dollars are scarce, their value, in effect, grows. No longer can the family afford to "waste" money on luxurious, frivolous, or unnecessary items. It is important, then, that family members agree on which goods and services are high priority, which are less important, and which can be postponed or replaced by less expensive substitutes until finances improve.

When your family begins to see what income is available and how money is being spent, it is time for a family conference. Lay out the records of anticipated monthly income and scaled-down expenses for all family members to see and evaluate. Subtract expenses from income: Is the remainder positive or negative after all monthly fixed and flexible expenses are subtracted from monthly income? Are expenses out of line with expected income? Where can cuts be made so they cause the least sacrifice in family welfare? It's easier to see the general pattern of spending if expenses are categorized. This reveals the percentage of income spent on food, housing, clothing, medical care, insurance, and other items. There are no hard-and-fast rules for family spending because individual needs, goals, and circumstances vary. However, examining spending by category will highlight potential differences between your family's stated goals and priorities and your actual spending patterns and income. If these differences are significant, you need to reach agreement on a plan for changing the way income is allocated.

If your family is operating "in the red," a couple of things must happen: expenses must be reduced, income must increase, or both.

Set Priorities for Spending

Some expenses are more important than others. Putting your bills in a stack and paying them until the money runs out won't work. You may not have enough money to pay all your expenses, but you must get the most out of what you do have. Set priorities for your spending to make sure you meet the health and welfare needs of family members and minimize the legal and economic risks of not paying some bills.

Obviously, food and shelter for your family should be the first priority with the income you have available. After those two are taken care of, hard choices may need to be made on which bills you must pay first. The following list provides an example of how you might rank creditors according to the degree of risk involved in nonpayment:

- Second Priority--Utilities, insurance, automobile loan.
- Third Priority--Credit cards and outstanding debts, finance companies, credit union, and other loans.
- Fourth Priority--Doctors, dentists, hospital, and retailers.

Contact all of your creditors before your bills are due, explain your situation, and offer to negotiate new repayment terms. If a creditor agrees to new repayment terms, uphold your responsibility by meeting the terms you agreed to. If any changes occur that affect your repayment plan, contact your creditors immediately.

Negotiate Your Payments

Mortgage Payments. Most lending institutions are willing to work with homeowners who have mortgage payment difficulties. Generally, a lender does not want to foreclose on a mortgage because time and money may be lost in selling the property at public auction. Small, locally controlled community lenders can sometimes be

more flexible in negotiating new short term payment plans than larger or nonlocal lenders, but be realistic. Eventually the lender will require full payment or will take legal action.

If you can't make full payments, act immediately before the first payment is missed. Call the mortgage company and speak to someone in the mortgage servicing department. Identify yourself by the loan number, and then explain your situation. Propose a plan, such as a deferred or partial payment plan. If your plan is rejected, ask what your options are and what you should do next. These questions are difficult to ask, but the information is absolutely essential for your next decision.

You may want to seek neutral advice regarding repayment alternatives and the consequences of each. Considerations include these:

- Extend the loan
- Refinance
- Sell, even if the market is depressed and a prepayment penalty is imposed
- Voluntarily surrender to the lender (deed in lieu of foreclosure) or
- File for bankruptcy.

The consequences of each alternative can be positive or negative and may vary from person to person. You may have to choose an option based on the least negative consequences.

Consider first your options for *extending your loan or refinancing.* Deciding whether to *sell* your home should be done fairly early to ensure that the equity is not used up with the interest. While the decision to sell may be difficult, the speed with which that decision is made could be the difference in cash-in-hand versus no cash from the sale.

Voluntary surrender (a deed in lieu of foreclosure) means that you voluntarily turn over your house to the lender in consideration for the cancellation of the debt. This is an option to consider if foreclosure seems inevitable. People choosing this alternative usually --

- Have little equity in the house.
- Want to avoid the costs of foreclosure and having the information placed in their credit records.
- Have another alternative for housing. Your lender may, but is not required to, make arrangements to rent you the same house.

Avoid foreclosure if possible. A mortgage is delinquent on the date specified in the mortgage--usually when a payment is 30 days overdue. Most mortgage holders begin foreclosing on the first mortgage after the third month of delinquency. In areas of widespread unemployment, some local mortgage holders may be willing to accept interest payments plus a small payment on the principal rather than foreclose on a large number of homes in the community. Mortgage holders outside of the local area may be less willing to extend mortgage repayment terms beyond the third month.

Utility Bills. If you are delinquent on your utility bills, most utility companies must notify you prior to discontinuing services. In most cases, you must be given notice allowing you at least five days to pay your bill before your service can be cut off.

If you can't make full payments on your utility bills, you should take these steps:

- Notify the company immediately, before the due date and before fuel is needed. Explain the reason for your inability to pay.
- Propose a new payment plan based on your current ability to pay. If you don't have a plan or if your plan is not acceptable, develop one with the company.
- Check to see if you are eligible for any area assistance programs or ask your utility company about assistance. Many agencies, churches, and other groups provide money for utility bills in emergency situations.

- Talk with family members and decide how you will safely reduce the use of your utilities and cut your costs.

Telephone Bills. If you feel that you will have problems paying your telephone bill, contact the telephone company before the bill is due. Depending on your prior record, and at the discretion of the company, a payment plan may be set up where you will not have service interrupted.

If you receive written notice of termination of service, the telephone company will attempt to notify you again (by telephone) at least two times before terminating your service. To get service again once it has been disconnected, you may be required to: (1) pay the prior bill in full, (2) reapply for service and pay installation charges, and (3) pay a large deposit.

You can reduce your telephone costs in several ways:

- Analyze your service breakdown and eliminate custom calling features and unpublished listings. These are often unnecessary and add to your costs.
- Trade or remove enhanced telephone models from your home. Trimline and touch-tone models are nearly three times as expensive to rent as standard rotary models.
- Eliminate all unnecessary calls if you are in a measured service area.
- Buy your phone. This may be less expensive than renting.

Insurance Payments. If you can't make an insurance payment, call or write your agent or the insurance company. Explain your situation and ask them to consider a different payment plan. There may be some leeway (10 to 30 days) in premium payment due dates. Check your policy and confirm with your insurance company.

Determine your minimum needs for insurance. Check to see if a lower premium is possible through taking the following actions:

- Change to a monthly, quarterly, or semi-annual payment plan with the same coverage.
- Change to more basic coverage as long as your needs are met.

If your car is older and paid for, consider dropping collision coverage or raising the deductible. Make sure you are receiving any discounts offered by your company for eligible drivers.

Consider changing your life insurance policy to a less expensive type if that is appropriate for your family's situation. Converting whole life to term insurance may be one option. Another is to use your dividends to reduce your premiums.

Conclusion

Coping with the stress and hardships of a reduced income is not an easy task for you or your family. There are no easy answers or quick cures. Adapting and regrouping will be easier if you remember that you are the same person as before--but with reduced cash flow. You can maintain control of your situation during this period of financial change by reducing and prioritizing spending as much and as quickly as possible. The step-by-step procedures outlined here will help you clarify your priorities, make decisions, implement your plan, minimize your anxiety, and strengthen and prepare you and your family for the future.

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Worksheet for Flexible Expenses

Spending Category	**Average Monthly Amount**
Child Care	$
Church	
Clothing	
Doctor, Drugs, Dentist	
Education	
Food	
Gifts	
Insurance	
-- Car	
-- Health	
-- Home	
-- Life	
Personal Allowances	
Recreation	
Savings	
Transportation	
Utilities	
-- Cable	
-- Electric	
-- Gas	
-- Phone	
-- Water	
Other:	
TOTAL	$

Preparing a Living Will
A living Will and a Durable Power of Attorney for health care can give families peace of mind when unexpected illness or health problems arise. The following explains the purpose of each document.

A Living Will takes effect once a terminal medical condition arises or a person is in a persistent vegetative state. It contains your personal instructions to family or medical care providers about your wishes regarding the use of life-sustaining procedures should you become unable to direct your own medical decisions. In such a document you may instruct medical personnel to provide one of three levels of care: extensive life-sustaining procedures, such as a feeding tube and intravenous liquids; limited life-sustaining procedures; or no life-sustaining procedures. One can also request that no artificial life support be administered when, in the judgment of a competent medical practitioner, a condition becomes medically hopeless.

A Durable Power of Attorney for Health Care is a legal document that lets you empower someone, generally a family member, to be your proxy and to make health-care decisions under circumstances where you are unable to give current health-care directions. An example might be if you were to lapse into a coma or become unconscious. The Durable Power of Attorney is broader than a Living Will because it permits your proxy to handle medical issues for you when you have become incapacitated but your condition is not terminal. The Durable Power of Attorney gives your proxy authority only while the condition continues and terminates once you are again able to be personally responsible for your own care.

These two legal documents can be helpful for all adults and may be especially helpful for the elderly, who might wish to draw up the documents while they still have their full mental faculties.

To prepare these documents, families need to counsel together about medical measures that are to be used once an incurable condition arises. These documents must be signed in the presence of two witnesses and a copy should be sent to your physician, who will place it in your medical record. Forms and instructions vary from state to state and country to country; these forms can be obtained through some senior citizen service agencies, lawyers, or medical associations.

Drawing up a Will
Regardless of how much or how little wealth you have, it's important to have a will unless you want the state to take over after you die. Have a lawyer draw one up (the fee depends on how complicated the will is).

Organize all the papers and important documents you'll need to take with you to the lawyer. Your will is an inventory of all that you own-real estate, bank accounts, stocks and bonds (if any), annuities, and life insurance.

List your personal property such as jewelry, paintings, and collectibles and specify who gets what maybe that special collection of coins to a favorite nephew, the heirloom jewelry to a sister, a bequest to your favorite charity.

Whatever, be clear about the distribution of your assets. Don't forget to list your liabilities-mortgage, loans, credit cards. You have covered everything, short and sweet.

Whatever you do, don't forget to sign the will and have it witnessed by two people with their correct addresses included (should they be summoned by the court) and keep it where survivors will find it.

You will need to designate an executor to administer your will after you die. If drawn by a lawyer, the original copy of the will is filed at his or her office and a duplicate copy held in a safe deposit or your desk. (Whatever is in the will is not gospel until, as they say, the bell finally tolls. You can make changes.)

Funerals: A Guide
When a loved one dies, grieving family members and friends often are confronted with dozens of decisions about the funeral. All of which must be made quickly and often under great emotional duress. What kind of

funeral should it be? What funeral provider should you use? Should you bury or cremate the body, or donate it to science? What are you legally required to buy? What other arrangements should you plan? As callous as it may sound, how much is it all going to cost?

A Consumer Product

Funerals rank among the most expensive purchases many consumers will ever make. A traditional funeral, including a casket and vault, costs about $6,000, although "extras" like flowers, obituary notices, acknowledgment cards or limousines can add thousands of dollars to the bottom line. Many funerals run well over $10,000.

Yet even if you're the kind of person who might haggle with a dozen dealers to get the best price on a new car, you're likely to feel uncomfortable comparing prices or negotiating over the details and cost of a funeral, pre-need or at need. Compounding this discomfort is the fact that some people "overspend" on a funeral or burial because they think of it as a reflection of their feelings for the deceased.

Pre-Need

To help relieve their families of some of these decisions, an increasing number of people are planning their own funerals, designating their funeral preferences, and sometimes even paying for them in advance. They see funeral planning as an extension of will and estate planning.

Planning

Thinking ahead can help you make informed and thoughtful decisions about funeral arrangements. It allows you to choose the specific items you want and need and compare the prices offered by several funeral providers. It also spares your survivors the stress of making these decisions under the pressure of time and strong emotions.

One other important consideration when planning a funeral pre-need is where the remains will be buried, entombed or scattered. In the short time between the death and burial of a loved one, many family members find themselves rushing to buy a cemetery plot or grave - often without careful thought or a personal visit to the site. That's why it's in the family's best interest to buy cemetery plots before you need them.

You may wish to make decisions about your arrangements in advance, but not pay for them in advance. Keep in mind that over time, prices may go up and businesses may close or change ownership. However, in some areas with increased competition, prices may go down over time. It's a good idea to review and revise your decisions every few years, and to make sure your family is aware of your wishes.

Put your preferences in writing, give copies to family members and your attorney, and keep a copy in a handy place. Don't designate your preferences in your will, because a will often is not found or read until after the funeral. Avoid putting the only copy of your preferences in a safe deposit box. That's because your family may have to make arrangements on a weekend or holiday, before the box can be opened.

Prepaying

Millions of Americans have entered into contracts to prearrange their funerals and prepay some or all of the expenses involved. Laws of individual states govern the prepayment of funeral goods and services; various states have laws to help ensure that these advance payments are available to pay for the funeral products and services when they're needed. Protections vary widely from state to state, and some state laws offer little or no effective protection. Some state laws require the funeral home or cemetery to place a percentage of the prepayment in a state-regulated trust or to purchase a life insurance policy with the death benefits assigned to the funeral home or cemetery.

If you're thinking about prepaying for funeral goods and services, it's important to consider these issues before putting down any money:

- What are you are paying for? Are you buying only merchandise, like a casket and vault, or are you purchasing funeral services as well?
- What happens to the money you've prepaid? States have different requirements for handling funds paid for prearranged funeral services.

- What happens to the interest income on money that is prepaid and put into a trust account?
- Are you protected if the firm you dealt with goes out of business?
- Can you cancel the contract and get a full refund if you change your mind?
- What happens if you move to a different area or die while away from home? Some prepaid funeral plans can be transferred, but often at an added cost.

Be sure to tell your family about the plans you've made; let them know where the documents are filed. If your family isn't aware that you've made plans, your wishes may not be carried out. If family members don't know that you've prepaid the funeral costs, they could end up paying for the same arrangements. You may wish to consult an attorney on the best way to ensure that your wishes are followed.

The Funeral Rule

Most funeral providers are professionals who strive to serve their clients' needs and best interests, but some aren't. They may take advantage of their clients through inflated prices, overcharges, double charges, or unnecessary services. Fortunately, there's a federal law that makes it easier for you to choose only those goods and services you want or need and to pay only for those you select, whether you are making arrangements pre-need or at need.

The Funeral Rule, enforced by the Federal Trade Commission, requires funeral directors to give you itemized prices in person and, if you ask, over the phone. The Rule also requires funeral directors to give you other information about their goods and services. For example, if you ask about funeral arrangements in person, the funeral home must give you a written price list to keep that shows the goods and services the home offers. If you want to buy a casket or outer burial container, the funeral provider must show you descriptions of the available selections and the prices before actually showing you the caskets.

Many funeral providers offer various "packages" of commonly selected goods and services that make up a funeral. But when you arrange for a funeral, you have the right to buy individual goods and services. That is, you do not have to accept a package that may include items you do not want.

According to the Funeral Rule:

- You have the right to choose the funeral goods and services you want (with some exceptions).
- The funeral provider must state this right in writing on the general price list.
- If state or local law requires you to buy any particular item, the funeral provider must disclose it on the price list, with a reference to the specific law.
- The funeral provider may not refuse, or charge a fee, to handle a casket you bought elsewhere.
- A funeral provider that offers cremations must make alternative containers available.

What Kind of Funeral Do You Want?

Every family is different, and not everyone wants the same type of funeral. Funeral practices are influenced by religious and cultural traditions, costs and personal preferences. These factors help determine whether the funeral will be elaborate or simple, public or private, religious or secular, and where it will be held. They also influence whether the body will be present at the funeral, if there will be a viewing or visitation, and if so, whether the casket will be open or closed, and whether the remains will be buried or cremated.

Among the choices you'll need to make are whether you want one of these basic types of funerals, or something in between.

"Traditional," full-service funeral

This type of funeral, often referred to by funeral providers as a "traditional" funeral, usually includes a viewing or visitation and formal funeral service, use of a hearse to transport the body to the funeral site and cemetery, and burial, entombment or cremation of the remains.

It is generally the most expensive type of funeral. In addition to the funeral home's basic services fee, costs often include embalming and dressing the body; rental of the funeral home for the viewing or service; and use of vehicles to transport the family if they don't use their own. The costs of a casket, cemetery plot or crypt and other funeral goods and services also must be factored in.

Direct burial
The body is buried shortly after death, usually in a simple container. No viewing or visitation is involved, so no embalming is necessary. A memorial service may be held at the graveside or later. Direct burial usually costs less than the "traditional," full-service funeral. Costs include the funeral home's basic services fee, as well as transportation and care of the body, the purchase of a casket or burial container and a cemetery plot or crypt. If the family chooses to be at the cemetery for the burial, the funeral home often charges an additional fee for a graveside service.

Direct cremation
The body is cremated shortly after death, without embalming. The cremated remains are placed in an urn or other container. No viewing or visitation is involved, although a memorial service may be held, with or without the cremated remains present. The remains can be kept in the home, buried or placed in a crypt or niche in a cemetery, or buried or scattered in a favorite spot. Direct cremation usually costs less than the "traditional," full-service funeral. Costs include the funeral home's basic services fee, as well as transportation and care of the body. A crematory fee may be included or, if the funeral home does not own the crematory, the fee may be added on. There also will be a charge for an urn or other container. The cost of a cemetery plot or crypt is included only if the remains are buried or entombed.
Funeral providers who offer direct cremations also must offer to provide an alternative container that can be used in place of a casket.

Choosing a Funeral Provider
Many people don't realize that they are not legally required to use a funeral home to plan and conduct a funeral. However, because they have little experience with the many details and legal requirements involved and may be emotionally distraught when it's time to make the plans; many people find the services of a professional funeral home to be a comfort.

Consumers often select a funeral home or cemetery because it's close to home, has served the family in the past, or has been recommended by someone they trust. But people who limit their search to just one funeral home may risk paying more than necessary for the funeral or narrowing their choice of goods and services.

Comparison shopping need not be difficult, especially if it's done before the need for a funeral arises. If you visit a funeral home in person, the funeral provider is required by law to give you a general price list itemizing the cost of the items and services the home offers. If the general price list does not include specific prices of caskets or outer burial containers, the law requires the funeral director to show you the price lists for those items before showing you the items.

Sometimes it's more convenient and less stressful to "price shop" funeral homes by telephone. The Funeral Rule requires funeral directors to provide price information over the phone to any caller who asks for it. In addition, many funeral homes are happy to mail you their price lists, although that is not required by law.

When comparing prices, be sure to consider the total cost of all the items together, in addition to the costs of single items. Every funeral home should have price lists that include all the items essential for the different types of arrangements it offers. Many funeral homes offer package funerals that may cost less than purchasing individual items or services. Offering package funerals is permitted by law, as long as an itemized price list also is provided. But only by using the price lists can you accurately compare total costs.

Funeral Costs
Funeral costs include:

Basic services fee for the funeral director and staff

1. The Funeral Rule allows funeral providers to charge a basic services fee that customers cannot decline to pay. The basic services fee includes services that are common to all funerals, regardless of the specific arrangement. These include funeral planning, securing the necessary permits and copies of death certificates, preparing the notices, sheltering the remains, and coordinating the arrangements with the cemetery, crematory or other third parties. The fee does not include charges for optional services or merchandise.

2. Charges for other services and merchandise
   These are costs for optional goods and services such as transporting the remains; embalming and other preparation; use of the funeral home for the viewing, ceremony or memorial service; use of equipment and staff for a graveside service; use of a hearse or limousine; a casket, outer burial container or alternate container; and cremation or interment.

3. Cash advances
   These are fees charged by the funeral home for goods and services it buys from outside vendors on your behalf, including flowers, obituary notices, pallbearers, officiating clergy, and organists and soloists. Some funeral providers charge you their cost for the items they buy on your behalf. Others add a service fee to their cost. The Funeral Rule requires those who charge an extra fee to disclose that fact in writing, although it doesn't require them to specify the amount of their markup. The Rule also requires funeral providers to tell you if there are refunds, discounts, or rebates from the supplier on any cash advance item.

Calculating the Actual Cost
The funeral provider must give you an itemized statement of the total cost of the funeral goods and services you have selected when you are making the arrangements. If the funeral provider doesn't know the cost of the cash advance items at the time, he or she is required to give you a written "good faith estimate." This statement also must disclose any legal, cemetery or crematory requirements that you purchase, and any specific funeral goods or services.

The Funeral Rule does not require any specific format for this information. Funeral providers may include it in any document they give you at the end of your discussion about funeral arrangements.

Services and Products

Embalming
Many funeral homes require embalming if you're planning a viewing or visitation. But embalming generally is not necessary or legally required if the body is buried or cremated shortly after death. Eliminating this service can save you hundreds of dollars. Under the Funeral Rule, a funeral provider:

- May not provide embalming services without permission.
- May not falsely state that embalming is required by law.
- Must disclose in writing that embalming is not required by law, except in certain special cases.
- May not charge a fee for unauthorized embalming unless embalming is required by state law.
- Must disclose in writing that you usually have the right to choose a disposition, such as direct cremation or immediate burial that does not require embalming if you do not want this service.
- Must disclose in writing that some funeral arrangements, such as a funeral with viewing, may make embalming a practical necessity and, if so, a required purchase.

Caskets
For a "traditional," full-service funeral:
A casket often is the single most expensive item you'll buy if you plan a "traditional," full-service funeral.

Caskets vary widely in style and price and are sold primarily for their visual appeal. Typically, they're constructed of metal, wood, fiberboard, fiberglass or plastic. Although an average casket costs slightly more than $2,000, some mahogany, bronze or copper caskets sell for as much as $10,000.

When you visit a funeral home or showroom to shop for a casket, the Funeral Rule requires the funeral director to show you a list of caskets the company sells, with descriptions and prices, before showing you the caskets. Industry studies show that the average casket shopper buys one of the first three models shown, generally the middle-priced of the three.
So it's in the seller's best interest to start out by showing you higher-end models. If you haven't seen some of the lower-priced models on the price list, ask to see them - but don't be surprised if they're not prominently displayed, or not on display at all.

Traditionally, caskets have been sold only by funeral homes. But with increasing frequency, showrooms and websites operated by "third-party" dealers are selling caskets. You can buy a casket from one of these dealers and have it shipped directly to the funeral home. The Funeral Rule requires funeral homes to agree to use a casket you bought elsewhere, and doesn't allow them to charge you a fee for using it.

No matter where or when you're buying a casket, it's important to remember that its purpose is to provide a dignified way to move the body before burial or cremation. No casket, regardless of its qualities or cost, will preserve a body forever. Metal caskets frequently are described as "gasketed," "protective", or "sealer" caskets. These terms mean that the casket has a rubber gasket or some other feature that is designed to delay the penetration of water into the casket and prevent rust. The Funeral Rule forbids claims that these features help preserve the remains indefinitely because they don't. They just add to the cost of the casket.

Most metal caskets are made from rolled steel of varying gauges - the lower the gauge, the thicker the steel. Some metal caskets come with a warranty for longevity. Wooden caskets generally are not gasketed and don't have a warranty for longevity. They can be hardwood like mahogany, walnut, cherry, oak, or softwood like pine. Pine caskets are a less expensive option, but funeral homes rarely display them. Manufacturers of both wooden and metal caskets usually warrant workmanship and materials.

For cremation:
Many families that opt to have their loved ones cremated rent a casket from the funeral home for the visitation and funeral, eliminating the cost of buying a casket. If you opt for visitation and cremation, ask about the rental option. For those who choose a direct cremation without a viewing or other ceremony where the body is present, the funeral provider must offer an inexpensive unfinished wood box or alternative container, a non-metal enclosure - pressboard, cardboard or canvas - that is cremated with the body.

Under the Funeral Rule, funeral directors who offer direct cremations:

- may not tell you that state or local law requires a casket for direct cremations, because none do;
- must disclose in writing your right to buy an unfinished wood box or an alternative container for a direct cremation; and
- must make an unfinished wood box or other alternative container available for direct cremations.

Burial Vaults or Grave Liners
Burial vaults or grave liners, also known as burial containers, are commonly used in "traditional," full-service funerals. The vault or liner is placed in the ground before burial, and the casket is lowered into it at burial. The purpose is to prevent the ground from caving in as the casket deteriorates over time. A grave liner is made of reinforced concrete and will satisfy any cemetery requirement. Grave liners cover only the top and sides of the casket. A burial vault is more substantial and expensive than a grave liner. It surrounds the casket in concrete or another material and may be sold with a warranty of protective strength.

State laws do not require a vault or liner, and funeral providers may not tell you otherwise. However, keep in mind that many cemeteries require some type of outer burial container to prevent the grave from sinking in the

future. Neither grave liners nor burial vaults are designed to prevent the eventual decomposition of human remains. It is illegal for funeral providers to claim that a vault will keep water, dirt or other debris from penetrating into the casket if that's not true.

Before showing you any outer burial containers, a funeral provider is required to give you a list of prices and descriptions. It may be less expensive to buy an outer burial container from a third-party dealer than from a funeral home or cemetery. Compare prices from several sources before you select a model.

Preservative Processes and Products
As far back as the ancient Egyptians, people have used oils, herbs and special body preparations to help preserve the bodies of their dead. Yet, no process or products have been devised to preserve a body in the grave indefinitely. The Funeral Rule prohibits funeral providers from telling you that it can be done. For example, funeral providers may not claim that either embalming or a particular type of casket will preserve the body of the deceased for an unlimited time.

Cemetery Sites
When you are purchasing a cemetery plot, consider the location of the cemetery and whether it meets the requirements of your family's religion. Other considerations include what, if any, restrictions the cemetery places on burial vaults purchased elsewhere, the type of monuments or memorials it allows, and whether flowers or other remembrances may be placed on graves.

Cost is another consideration. Cemetery plots can be expensive, especially in metropolitan areas. Most, but not all, cemeteries require you to purchase a grave liner, which will cost several hundred dollars. Note that there are charges - usually hundreds of dollars - to open a grave for interment and additional charges to fill it in. Perpetual care on a cemetery plot sometimes is included in the purchase price, but it's important to clarify that point before you buy the site or service. If it's not included, look for a separate endowment care fee for maintenance and grounds keeping.

If you plan to bury your loved one's cremated remains in a mausoleum or columbarium, you can expect to purchase a crypt and pay opening and closing fees, as well as charges for endowment care and other services. The FTC's Funeral Rule does not cover cemeteries and mausoleums unless they sell both funeral goods and funeral services, so be cautious in making your purchase to ensure that you receive all pertinent prices and other information, and that you're being dealt with fairly.

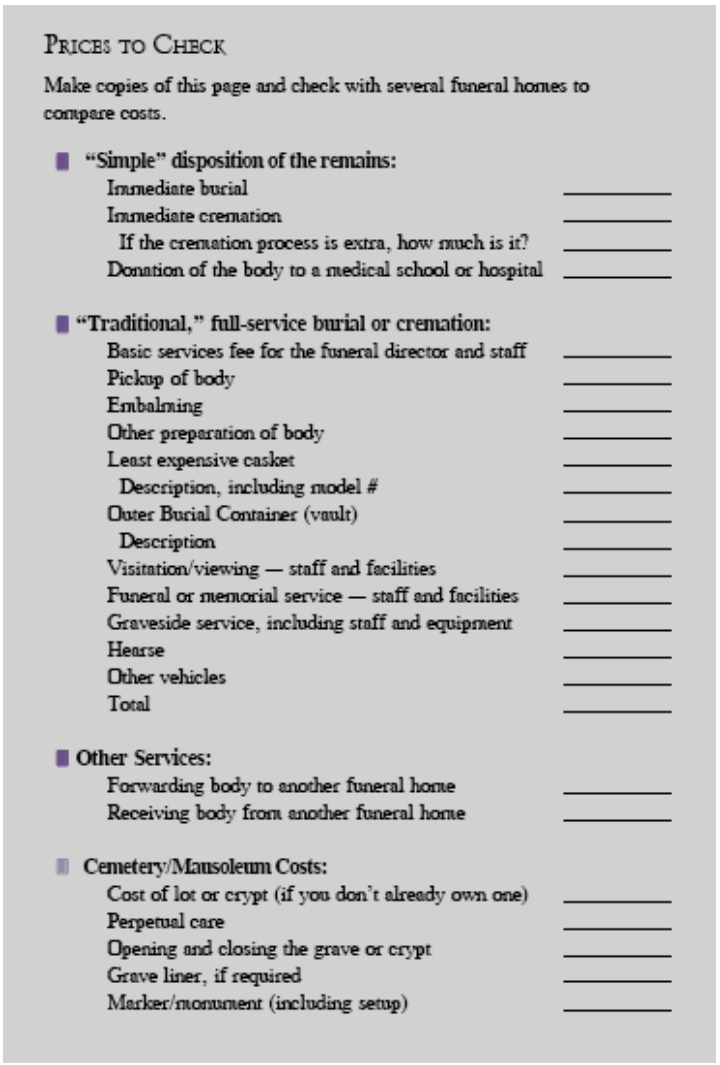
Veterans Cemeteries
All veterans are entitled to a free burial in a national cemetery and a grave marker. This eligibility also extends to some civilians who have provided military-related service and some Public Health Service personnel. Spouses and dependent children also are entitled to a lot and marker when buried in a national cemetery. There are no charges for opening or closing the grave, for a vault or liner, or for setting the marker in a national cemetery. The family generally is responsible for other expenses, including transportation to the cemetery. For more information, visit the Department of Veterans Affairs' website at www.cem.va.gov. To reach the regional Veterans office in your area, call 1-800-827-1000.

In addition, many states have established state veterans cemeteries. Eligibility requirements and other details vary. Contact your state for more information.

Beware of commercial cemeteries that advertise so-called "veterans' specials." These cemeteries sometimes offer a free plot for the veteran, but charge exorbitant rates for an adjoining plot for the spouse, as well as high fees for opening and closing each grave. Evaluate the bottom-line cost to be sure the special is as special as you may be led to believe.

Planning for a Funeral

1. Shop around in advance. Compare prices from at least two funeral homes. Remember that you can supply your own casket or urn.
2. Ask for a price list. The law requires funeral homes to give you written price lists for products and services.
3. Resist pressure to buy goods and services you don't really want or need.
4. Avoid emotional overspending. It's not necessary to have the fanciest casket or the most elaborate funeral to properly honor a loved one.
5. Recognize your rights. Laws regarding funerals and burials vary from state to state. It's a smart move to know which goods or services the law requires you to purchase and which are optional.
6. Apply the same smart shopping techniques you use for other major purchases. You can cut costs by limiting the viewing to one day or one hour before the funeral, and by dressing your loved one in a favorite outfit instead of costly burial clothing.
7. Plan ahead. It allows you to comparison shop without time constraints, creates an opportunity for family discussion, and lifts some of the burden from your family.



PRICES TO CHECK

Make copies of this page and check with several funeral homes to compare costs.

"Simple" disposition of the remains:

- Immediate burial _____
- Immediate cremation _____
- If the cremation process is extra, how much is it? _____
- Donation of the body to a medical school or hospital _____

"Traditional," full-service burial or cremation:

- Basic services fee for the funeral director and staff _____
- Pickup of body _____
- Embalming _____
- Other preparation of body _____
- Least expensive casket _____
- Description, including model # _____
- Outer Burial Container (vault) _____
- Description _____
- Visitation/viewing — staff and facilities _____
- Funeral or memorial service — staff and facilities _____
- Graveside service, including staff and equipment _____
- Hearse _____
- Other vehicles _____
- Total _____

Other Services:

- Forwarding body to another funeral home _____
- Receiving body from another funeral home _____

Cemetery/Mausoleum Costs:

- Cost of lot or crypt (if you don't already own one) _____
- Perpetual care _____
- Opening and closing the grave or crypt _____
- Grave liner, if required _____
- Marker/monument (including setup) _____

First Aid

You are likely to encounter an emergency needing first aid attention several times during your life. Families with young children are constantly being subjected to situations in which injury may occur and your quick calm thinking and application of first aid principles may make the difference between life and death.

Automobile accidents account for slightly more then one-half of all accidental deaths occurring each year. Your knowledge of first aid could not only save a member of your immediate family but could also save the life of a total stranger.

This section is not intended to teach you all you need to know about first aid. Such knowledge can only be obtained by attending first aid training courses sponsored by the American Red Cross or other training organizations and/or by extensively reading and studying books on first aid. The purpose of this section is to acquaint you with the most basic and elementary first aid procedures that may be needed to save a life in an emergency and to suggest items to include in a family first aid kit. **Please seek training from the local American Red Cross.**

Emergency Care

Depending on the type of emergency, you will have to make a quick decision of what to do first and what not to do.

1. Keep the victim lying down with his head level with his body until you have made some assessment of the problem.
   - If the victim is in severe shock place on back with legs slightly elevated.
   - If victim is vomiting or bleeding from the mouth and is semi-conscious there is danger of victim aspirating this material, place him on his side.
   - Shortness of breath-- if victim has a chest injury, place him in a sitting or semi-sitting position, or position of comfort.
2. Examine the victim for hemorrhage (serious bleeding), asphyxiation (suspended breathing), and shock- all of which require immediate treatment. The primary survey covers these four areas:
   - Open airway.
   - Check breathing.
   - Check circulation.
   - Stop hemorrhage or severe bleeding.
3. Do not move the victim more than is absolutely necessary. Remove clothing only enough to determine the extent of injuries. It is preferable to rip or cut clothing to remove it (removing in conventional manner may compound the injuries if they are severe).
4. Keep the victim reassured and as comfortable as possible.
5. Do not touch open wounds.
6. Do not give unconscious persons any solids or liquids by mouth.
7. Do not move the victim unless necessary to prevent further harm or injury. If you must move the victim do it by keeping the lengthwise axis of the body straight.

Keep the victim warm, but not overly hot. Remember, by far the greater number of injuries will require a minimum of effort on your part and a maximum of judgment and self-control to prevent doing too much.
In emergency situations rapid, calm, efficient efforts can minimize problems; and even in prolonged emergency situations, sticking with standard first aid care may be better than risking life-threatening procedures.

Immediate Lifesaving Measures

Most injuries can be dealt with calmly and without hurry. However, in serious life threatening injuries first steps must be taken immediately to preserve life. **First**, open the victim's airway and restore his breathing and

heartbeat if necessary (See Cardiopulmonary Resuscitation -- CPR Below). **Second**, Stop any bleeding (See Bleeding below) and dress and bandage wounds to prevent infection. **Third**, treat the victim for poisoning. **Fourth**, treat him for shock.

Cardiopulmonary resuscitation (CPR)
Cardiopulmonary resuscitation (CPR) guidelines have recently changed. CPR is almost always used in conjunction with mouth-to-mouth resuscitation. The following are guidelines for CPR from the American Red Cross:

For Adults (Age 12 or older)

- Check the scene and then check the person. Make sure the scene is safe to enter.
- Tap person on shoulder and shout, "Are you okay?"
- No response, Call 9-1-1
- If an unconscious person is face down—Roll face-up supporting head, neck and back.
- Open airway by tilting head back and lifting chin
- Check for signs of life (movement and breathing) for no more than 10 seconds
- If no breathing, give 2 rescue breaths. Irregular, gasping or shallow breaths are NOT effective.
    - To Give rescue breaths:
        - Tilt head and lift chin, then pinch nose shut
        - Take a breath and make a complete seal over person's mouth.
        - Blow in to make chest clearly rise. (Each rescue breath should last about 1 second)
- If breaths do not go in go to **Choking: The Heimlich Maneuver section (pg)**
- If Breaths do go in, quickly scan for severe bleeding go to **Bleeding** section (pg) if necessary
- Placing heel of hand over center of chest between nipples with other hand on top, arms straight and your shoulders directly above your hands give 30 chest compressions.
- Continue this cycle of 2 breaths and 30 compressions (rate 100/minute) until:
    - Scene becomes unsafe.
    - You find sign of life.
    - Another trained responder arrives to take over.
    - AED (automated external defibrillator) is ready to use.
        - Turn on AED
        - Wipe chest dry and remove any medication patches with gloved hand.
        - Attach pads to bare chest
        - Plug in connector, if necessary.
        - Make sure no one, including you, is touching the person. Say, "EVERYONE STAND CLEAR."
        - Push "analyze" button, if necessary. Let AED analyze heart rhythm.
        - If SHOCK ADVISED-
            - Make sure no one, including you, is touching the person.
            - Say, "EVERYONE STAND CLEAR."
            - Push "shock" button, if necessary.
        - After Shock
            - Give 5 cycles or about 2 minutes of CPR
            - Let AED reanalyze
        - If no shock advised
            - Give 5 cycles or about 2 minutes of CPR

For Child (age 1 to 12)
CPR for this age group is the same as for adult except:

- Give 1 rescue breath every 3 seconds
- Give 2 minutes of CPR before calling 9-1-1 then continue 2 breaths/30 compressions cycle
- If using AED use pediatric pads. If not available use adult pads. If pads risk touching each other use front/back method.

For Under age 1
CPR for this age group is the same for child except"

- Do not tilt infants head back as far as adult to open the airway.
- Seal your mouth over the infant's mouth and nose.
- Use two fingers in the center of the chest just below the nipples.

Choking: The Heimlich Maneuver
Choking on food is the sixth leading cause of accidental death in the U.S.

Over 3,000 and as many as 6,000 deaths occur each year. The usual slap on the back does not help very much, but the Heimlich Maneuver is easy to administer and is quite safe if administered properly.

Choking occurs when food is sucked into the windpipe instead of being swallowed. Onlookers often mistake the symptoms for those of a heart attack and administer inappropriate treatment.

The maneuver utilizes air that is already in the lungs. Even when we've breathed out, we still have quite a bit of air in the lungs. The Maneuver forces the diaphragm upward which forces air up through the windpipe to dislodge the obstruction.

The most important thing is to make sure the victim is choking, but the choking victim cannot talk. Therefore if the patient is still conscious, one must quickly ask questions that can be answered by shaking or nodding the head -- but quickly. The choking patient will soon collapse. This can be done with the patient in the standing or sitting positions or with the patient lying on his back.

Standing
Lean the person forward and give 5 back blows with the heel of your hand. Stand behind the victim and make a fist. Place the thumb end of the fist against the abdomen of the victim, with the fist definitely below the rib cage and above the belly button. Place the other hand over the fist and pull up and in, quickly. The force should depend on the amount required to move enough air to remove the obstruction.

In order to prevent injury from using more force than is necessary, one may wish to start with minimal force and increase with each attempt. It may be necessary to repeat the Maneuver four or five times. With small children, use only the fingers to apply pressure.

Sitting
When the victim is sitting, the chair can provide a good brace or support to perform the Maneuver, which is performed as above.

Lying Down
If the victim has collapsed, or if the victim is so large that the person applying the treatment is unable to reach around the victim, the victim should be placed on the floor on his back. The person applying the treatment quickly straddles the hips of the victim, places one hand over the other and with the heels of the hands well below the rib cage (between the rib cage and the belly button) quickly pushes up and in. Remove the food quickly after it is expelled. Also the patient may vomit, so quickly turn him on his side after treatment.

After all, there is very little time. Death or brain damage will occur in just a few minutes. You must act fast. The victim should be examined by a physician after a choking episode and treatment.

Note: Give chest thrusts to a choking person who is pregnant or too big to reach around.

If Alone
This can be administered to yourself by placing the hands as if standing behind a victim and then letting yourself fall over a chair or table.

A Distress Signal
Placing the hand to the throat is an almost automatic response of someone choking. This will convey the message, “I am choking". Teach this Maneuver to every member of your family so that they may react quickly to save the life of another.

Bleeding
Bleeding is the most visible result of an injury. Each of us has between five and six quarts of blood in our body. Most people can lose a small amount of blood with no problem, but if a quart or more is quickly lost, it could lead to shock and/or death. One of the best ways to treat bleeding is to place a clean cloth on the wound and apply pressure with the palm of your hand until the bleeding stops. Once the bleeding stops, do not try to remove the cloth that is against the open wound as it could disturb the blood clotting and restart the bleeding. Never use a tourniquet (a device, such as a bandage twisted tight with a stick, to control the flow of blood) except in response to an extreme emergency, such as a severed arm or leg. Tourniquets can damage nerves and blood vessels and can cause the victim to lose an arm or leg. Pressure points and elevation have not been proven to help control bleeding. Using these unproven procedures has the potential to compromise the proven intervention of direct pressure. Treat for shock if necessary.

Signs of internal bleeding:

- Bleeding from ears, nose, rectum
- Coughing up blood
- Bruising on neck, chest, abdomen
- Penetrating wounds
- Abdominal tenderness
- Fractures
- Shock

Nose Bleeds
Injury to the soft tissue of the nose may or may not include fractures. Nosebleeds can result from injury or disease such as high blood pressure, which can cause profuse, prolonged, and dangerous bleeding.

Treatment
Keep person quiet
Place person in a sitting position, leaning forward if possible
Apply pressure directly at the site of bleeding by pressing the bleeding nostril toward the midline.
Apply cold compresses to the victim’s nose and face.
If bleeding cannot be controlled by the proceeding measures, insert a small, clean pad of gauze into one or both nostrils and apply pressure externally with your thumb and index finger. A free end of the pad must extend outside the nostril so that the pad can be removed later.
If bleeding continues or fracture involved obtain medical assistance.

Shock
The circulatory system distributes blood to all parts of the body, carrying oxygen and nutrients to the tissues. If the circulatory system fails, and insufficient oxygen reaches the tissues, the medical condition known as shock occurs. If the condition is not treated quickly, the vital organs can fail, ultimately causing death. Shock is made worse by fear and pain.

Causes of Shock
Shock can develop when the heart pump fails to work properly, causing a reduction in the pressure of the circulating blood. The most common cause of this type of shock is a heart attack.

Shock can develop as a result of a reduction in the volume of fluid circulating around the body. The most common examples of this are external or internal bleeding, or loss of other bodily fluids through severe diarrhea, vomiting, or burns. The blood supply is diverted from the surface to the core of the body. The main symptoms and signs of shock relate to such redistribution of the circulation.

Recognition of Shock
Initially, a flow of adrenaline causes:

- A rapid pulse.
- Pale, grey skin, especially inside the lips. If pressure is applied to a fingernail or earlobe, it will not regain its colour immediately.
- Sweating, and cold, clammy skin (sweat does not evaporate).

As shock develops, there may be:

- Weakness and giddiness.
- Nausea, and sometimes vomiting.
- Thirst.
- Rapid, shallow breathing.
- A weak, 'thready' pulse. When the pulse at the wrist disappears, fluid loss may equal half the blood volume.

As the oxygen supply to the brain weakens:

- The casualty may become restless, anxious and aggressive.
- The casualty may yawn and gasp for air ('air hunger').
- The casualty will eventually become unconscious.
- Finally, the heart will stop.

Treatment of Shock

- DO NOT let the casualty move unnecessarily, eat, drink, or smoke.
- DO NOT leave the casualty unattended. Reassure the casualty constantly.
- Treat any cause of shock which can be remedied (such as external bleeding).
- Lay the casualty down, keeping the head low.
- Raise and support the casualty's legs 8 to 12 inches (be careful if suspecting a fracture).
- Loosen tight clothing, braces, straps or belts, in order to reduce constriction at the neck, chest and waist.
- Insulate the casualty from cold, both above and below. Contact the emergency service.
- Check and record breathing, pulse and level of response. Be prepared to resuscitate the casualty if necessary.

Poisoning
All poisonings are serious. Some poisonings require immediate attention before calling for help. Check labels for first aid information, and follow it immediately. Speed is crucial. **Call 911 or the Poison Control Center at 1-800-451-1428 or 1-800-222-1222**

Tell-Tale Signs of Poisonings
Things to watch for in a suspected poisoning include:

- Breathing difficulty
- Unusual stains or odors on clothes or skin.
- Unusual odor on breath.

- Drowsiness, chest or stomach pain, vomiting, sweating, drooling, irritability, signs of fear, or other sudden changes in behavior.
- Changes in consciousness
- Seizure
- Headache or dizziness
- Irregular pupil size
- Burning/tearing of eyes
- Abnormal skin color
- Burns around the lips, tongue or on the skin
- Drug or chemical containers that are open and/or out of place.

Poisoning Symptoms
Each chemical family attacks the human body in a different way. General poisoning symptoms include the following.

Mild Poisoning
Headache, fatigue, weakness, dizziness, restlessness, perspiration, nausea, diarrhea, loss of appetite, loss of weight, thirst, moodiness, soreness in joints, skin irritation, eye irritation.

Moderate Poisoning
Severe nausea, severe diarrhea, excessive saliva, stomach cramps, excessive perspiration, trembling, no muscle coordination and muscle twitches, extreme weakness, mental confusion, blurred vision, difficulty in breathing, cough, rapid pulse, flushed or yellow skin, weepy eyes.

Severe Poisoning
Fever, intense thirst, increased rate of breathing, uncontrollable muscle twitches, pinpoint pupils, convulsions, inability to breathe, unconsciousness.

Before calling for help, treat the following situations as suggested.

Poisons in the Eye
Eye membranes absorb chemicals quickly. This can lead to eye damage within minutes. Flood the eye with lukewarm (never hot) water poured from a large glass two to three inches from the eye. Continue for 15 minutes. Blink the eye as much as possible during the flooding. Do not force the eyelid open and do not allow the eyes to be rubbed.
If lukewarm water is not available, rinse the eye quickly using a gentle stream from a hose for at least 15 minutes.

Poisons on the Skin
If poisons come in contact with the skin, they must be removed as quickly as possible. Remove contaminated clothing and flood the skin area with water for 10 minutes. Then gently wash the skin area with soap and water and rinse. Later, destroy contaminated clothing.

For a chemical skin burn, rinse the area with lots of water, remove the clothes and cover with a soft, clean cloth. Do not apply grease or ointments.

Inhaled Poisons
Inhaled poisons are very serious because of the damage that can be done to the lungs and other tissues of the body. Minimize your risk of exposure, and immediately get the person to fresh air. Loosen the victim's clothing. Send someone for help as quickly as possible. If the victim is not breathing, start artificial respiration and continue it until the victim is breathing or help arrives. Open the doors and windows so no one else will be poisoned by the fumes.

Swallowed Poisons
Many different poisons can be swallowed. Look into the victim's mouth and remove all tablets, powder, or any material that may be present. Examine the mouth for cuts, burns, swelling, unusual coloring or odor. **DO NOT administer ipecac syrup, give anything to drink or eat, or do anything to induce vomiting.**

If possible find out the following information to give 9-1-1 or PCC:

- What type of poison
- How much was taken
- When it was taken
- How poison entered the body

Burns

1. Degrees of burns:
    - 1st degree -- Skin is red and tender. (As in a sunburn)
    - 2nd degrees -- Blisters develop, never break or open blisters.
    - 3rd degree -- Deep tissue damage.
2. First Aid for 1st and 2nd degree burns -exclude air by:
    - Submerging in cold water (the best thing to do.)
    - Applying a cold pack not ice.
    - Covering with a thick dressing or plastic. Do not use plastic on the face. After using cold water or cold pack, cover the burn area with a thick dry sterile dressing and bandage firmly to exclude air.
3. First Aid for 3rd degree burns:
    - Apply a thick dry sterile dressing and bandage to keep out air.
    - If large area, wrap with clean sheet or towel.
    - Keep burned hands and feet elevated and get medical help immediately.
    - Treat the same as shock victim, giving fluids as indicated and warmth if necessary.
4. First Aid for Chemical burns:
    - Wash chemical away with water.
    - Acid or alkali burns of the eyes: wash eye thoroughly in plain water for 10 to 15 minutes. If the victim is lying down, turn head to side. Hold the lid open and pour from inner corner outward.
    - Have the victim close the eye, place eye pad over lid, bandage and get medical help as soon as possible.

Broken Bones

1. Signs of a closed fracture:
    - Swelling
    - Tenderness to touch
    - Deformity
    - Discoloration
2. Treatment for closed fractures:
    - Keep broken bone ends from moving.
    - Keep adjacent joints from moving.
    - Treat for shock.
    - Splint (see section #4 below on splinting.)
3. Treatment for open fractures:
    - Do not move protruding bone ends
    - If bleeding, control bleeding by direct pressure on wound.
    - Treat same as closed fracture after bleeding is controlled.
4. Splinting:
    - Place one hand above and one hand below fracture to support it.

- Have someone grasp end of limb and pull steadily until bone is set and splints are in place.
- Secure the splints to the limb.
- Treat for shock

Sprains

Injury to soft tissue around a joint.

1. Always immobilize.
2. Elevate joint.
3. Apply cold during first half hour.
4. Treat the same as a closed fracture.

Head Injuries

1. Symptoms of head injuries:
    - May or may not be conscious.
    - Any changes in level of consciousness.
    - Bleeding from mouth, nose, or ears.
    - Paralysis of one or more extremities.
    - Difference in size of pupils of the eyes.

2. First aid for head injuries:
    - No stimulant or fluids.
    - Do not raise feet, keep victim flat.
    - Observe carefully for stopped breathing or blocked airway.
    - Get medical help immediately.
    - When transported, do so gently, lying flat.
    - Position head to side so secretions may drool from corner of mouth.
    - Loosen clothing at neck.

Epilepsy

1. Allow the victim to have the seizure.
2. Remove objects that may injure the victim during the attack.
3. Be aware of the possibility of breathing emergency.
4. Place victim on side after seizure has stopped.

Electric Shock

1. Do not touch the victim if he is still in contact with the electricity
2. Turn off the power source or safely remove wires from the victim.
3. After the rescue, check immediately for stopped breathing; if stopped, administer artificial resuscitation.
4. Treat for shock.

Psychological First Aid

Catastrophic difficulties frequently bring about severe emotional reactions in the parties involved. These are often unpredictable but are normally only temporary.

If the person is not violent, the first thing to do is to treat physical injuries. If person becomes violent, call for professional help, 911. Stay calm. Comfort the person; do not criticize him but on the other hand do not be overly solicitous. Avoid expressions such as "snap out of it", or "get hold of yourself." Avoid joking.

Accept the person's feelings and try to reassure him. Make things as comfortable as possible. Involve the victim in meaningful but not overly taxing activity as soon as possible to help him release tensions and forget his troubles.

Be patient with the disturbed. It may take awhile, but they will probably return to normal. Do not give sedatives or tranquilizers; these will only delay his adjustment to the situation.

Diarrhea
In some cases diarrhea can be a serious malady. When it occurs, the victim should stop eating solid food and start a diet of clear fluids, such as broths, Jell-O water, juices, and similar liquids. Milk and other dairy products should be avoided. Fluids could also include a sugared salt solution made with one and one-half tablespoons of sugar and one teaspoon of salt in a quart of water. Kaopectate also helps. While the diarrhea continues, pay particular attention to sanitation and hygiene to prevent spread of the disease.

Hypothermia
For complete information and instruction, see "Winter Storms (pg. 131)."

First Aid Kit
The first aid kit as suggested below can easily be included on family outings or used for everyday problems at home. Be sure to keep it well and freshly stocked. This first aid kit is different from the one listed in the section on 72-hour survival kits, in that this one is much more comprehensive and not as portable.

The kit and first aid book should be stored together in an easy to reach location. The contents should fit the needs of your family. Filling a small tool box, fishing tackle box, or Tupperware container with those things your family needs may be better than buying a pre-assembled kit. Some of the items you may want to consider including in your first Aid Kit:

- Prescription drugs
- Antibiotic ointment
- Aspirin tablets (5 grain)
- Children's aspirin
- Tylenol
- Children's Tylenol
- Motion sickness medication
- Kaopectate (diarrhea medication)
- Laxative
- Eye drops
- Ear drops
- Nasal spray
- Aerosol Burn spray
- Benadryl
- Cough medicine (Codeine Prescription)
- Vaseline
- Hand lotion
- Iodine
- Hydrogen peroxide
- Smelling salts
- Table salt
- Baking soda
- Rubbing alcohol
- Sun screen
- Water Purification tablets
- Soap (tincture of green soap)
- Artificial skin spray
- Chlorine bleach

- Inhalation aids (Vicks, etc)

When buying drug items, check the expiration dates and only buy fresh supplies for longest shelf life.

Dressings

- Adhesive tape, roll 2" wide.
- Bandage, sterile roll 2" wide.
- Bandage, sterile roll 4" wide.
- Bandages, large triangular (37x37x52).
- Band aids (plastic strips).
- Cotton-tipped swabs (Q-tips).
- Cotton, sterile absorbent.
- Ace bandages.
- Gauze pads (4x4)
- Butterfly bandages

Other necessary or useful supplies:

- Tweezers
- Plastic spoons
- Scissors
- Pocket knife
- Needles, thread
- Space Blankets
- Safety pins, assorted sizes
- Paper and pencil
- Thermometer
- Heavy string
- Sanitary Napkins
- Snake Bite Kit
- Tissues
- Matches, butane lighter
- Clean sheets, torn into long strips
- Medicine dropper(s)
- Splints, wooden 18" (optional)
- Rubber Gloves
- Cold pack (turns cold when opened)
- Plastic sheeting
- Dental floss
- Waterproof first aid kit
- Paper cups, 3 ounce size
- Razor Blades

You should also have a good book on first aid in your first aid kit such as:

- Standard First Aid and Personal Safety, American National Red Cross (Garden City, NY; Double day and Company, Inc.)
- Boy Scout Handbook.
- Boy Scout First Aid Merit Badge Handbook.
- This Emergency Preparedness Handbook.

All families that have children should complete an Authorization of Consent to Treatment of Minor form for each of their children and file it with their schools, doctor's office, hospital, baby sitter, or other place where the child is likely to be when a personal injury may occur when the parents are not around. Include with this form a brief history of any known medical problems your child may have such as allergies to certain medications, recurring medical ailments, etc.

Emergency Childbirth

When birth is imminent and medical help is unavailable, it is important to understand the normal course of labor and childbirth. The mother and anyone who is helping can make the birth easier and safer by knowing exactly what is happening and how best to help.

Labor is Divided into Three Stages

- **First Stage** - the womb contracts by itself to open and bring the baby down to the birth canal.
- **Second Stage** - the mother pushes (bears down) with the contractions of the womb to help the baby through the birth canal and out into the world.
- **Third Stage** - the afterbirth is expelled.

First Stage

In this early part of labor it is often helpful for the mother to keep occupied as long as she does not get too tired. She should be patient and calm, relaxing as the contractions come and go and breathing slowly and deeply during the contractions as they become strong. Emptying the bowels and frequent urination will help to relieve discomfort. The mother will know she is in true labor if she has regular contractions of the womb which are prolonged and become strong and closer together. When she knows the baby is on the way, she should choose a place to have the baby that will be clean and peaceful. She should be able to lie down or sit in a leaning position (with her back well supported).

The following events occur as part of the first stage of labor and delivery.

1. The state of dilation: the first signs may be noticeable only to the mother, low-backache and irregular cramping pains (contractions) in the lower abdomen.
2. As labor progresses, the contractions become stronger, last longer, and become more regular. When the contractions recur at regular 3-4 minute intervals and last from 50-60 seconds, the mother is in the latter part of the first stage.
3. The contractions will get stronger and more frequent. The mother will often make an involuntary, deep grunting, moan with each contraction. The delivery of the baby is now imminent.

What to Do During the First Stage

Those helping the mother should know how to time the contractions. This information will give them an idea as to how far into labor the mother is and how much time remains until the baby comes.

Place a hand on the mother's abdomen just above the umbilicus. As contractions begin you will feel a hardening ball. Time the interval from the moment the uterus begins to harden until it completely relaxes.

Time the intervals in minutes between the start of one contraction and the start of the next contraction. As labor progresses this time will decrease.

Walking or standing tends to shorten labor, so if that feels comfortable to the mother, let her. Also, if she becomes hungry or thirsty, let her eat or drink small amounts of food, fruit juice, or suck on ice chips.

Don't Leave the Mother Alone

Make no attempt to wipe away vaginal secretions, as this may contaminate the birth canal. The bag of water may rupture during this stage of labor and blood tinged mucous may appear.

At the end of the first stage, the mother may feel tired, discouraged, and irritable. This is often referred to as "transition" and is the most uncomfortable part of labor and such feelings are perfectly normal. The mother may have a backache, may vomit, may feel either hot or cold (or both at the same time), she may tremble, feel panicky or scared, cry or get very cross with her husband and birthing attendants. She may even announce that she has changed her mind and is not going through with it. At this time she needs plenty of encouragement and assurance that things are proceeding normally and that her feelings are normal.

Birth attendants, the husband, and others present at the labor and birth should have a cheerful, calm appearance. Nervousness, panic, or distressing remarks can have an inhibiting effect on a laboring woman. Comments on how long the labor is lasting, how pale or tired the woman looks can have a terrible effect on her morale. Even talking quietly can irritate a woman having an intense contraction because it is hard to concentrate on relaxing when there is noise in the room.

Relaxation is very important. A woman's husband or labor coach should instruct her to go limp like a rag doll and breath deeply, making her tummy rise and fall. This is called abdominal breathing. Begin each contraction with a deep breath to keep the tissues (of both mom and baby) oxygenated. Observe the kind of breathing you do when you are nearly asleep and try to simulate it. Help her to relax her hands, face, legs etc. if you see that they are tense. Tenseness in the body fights the contractions and intensifies the sensations of "pain." Relaxation helps a woman to handle the contractions easier and have a faster labor. Sometimes a woman will breathe too fast and get tingling sensations in her hands and feet. She needs to be coached to slow down her breathing. You can have her follow your breathing until the tingling goes away.

Firm hand pressure on the lower back by those attending the mother may help to relieve the back ache. Alternately, the mother may prefer to lean her back against a firm surface. Deep rhythmical breathing helps to relieve annoying symptoms. The discomfort seldom lasts for more than a dozen contractions.

When the womb is almost fully opened the baby will soon enter the birth canal, and there will be a vocalized catch in the mother's breathing when she has a contraction. This will signal the onset of the second stage.

Second Stage

The contractions of the second stage are often of a different kind. They may come further apart and the mother usually feels inclined to bear down (push) with them. When she gets this feeling she should take a deep breath as each contraction comes, hold her breath and gently push. There is no hurry here. The mother should feel no need to exert great force as she pushes. She may want to push with several breaths during each contraction. After it passes, a deep sigh will help her recover her breath. She should then rest until the next contraction. She may even sleep between contractions.

Some general instructions for the second stage of labor:

1. Be calm! Reassure the mother and be prepared to administer first aid to both the mother and baby. (Possible respiratory and cardiac resuscitation for the baby and hemorrhage control and prevention of shock for the mother may be needed).
2. Discourage onlookers from crowding around the mother.
3. Use sterile materials or the cleanest materials available. Clean towels or parts of the mother's clothing can be used. Place newspaper under the mother if nothing else is available. If she must lie on the ground, place a blanket or other covering under her.
4. In order to prevent infection, refrain from direct contact with the vagina.
5. Prepare for the delivery by assisting the mother to lie on her back with the knees bent and separated as far apart as possible. Remove any constricting clothing or push it above her waist.
6. When the baby's head reaches the outlet of the birth canal, the top of the head will first be seen during contractions but will then become visible all the time. The mother will now feel a stretching, burning sensation. She must now no longer push during the contractions, and to avoid this, should pant (like a dog on a hot day). This will allow the baby's head to slide gently and painlessly out of the canal. If possible allow the head to emerge between contractions. This will prevent the mother's skin from tearing and will minimize trauma to the baby's head. It is important that the mother pant instead of pushing until both of the baby's shoulders have emerged.

Delivery of the Baby

As the baby is coming down the birth canal, keep the perineum red or pink by massaging with warm olive oil (if none is available simply massage the area with your hand). Any place that gets white will tear more easily so

keep massaging and keep all areas red. Use olive oil on the inside too and pay special attention to the area at the bottom, as that is the most common place to tear. Do this massage during a contraction when it will not be noticed or it may irritate some women.
You can support under the perineum with your hand on top of a sterile gauze pad or washcloth. Do not hold it together; just support it so the baby's head can ease out. The other hand can gently press with the fingers around the baby's head so it won't pop out too fast causing tearing. As the baby's head is born, support it with your hand so the face doesn't sit in a puddle of amniotic fluid. Gently wipe the face with a clean or sterile washcloth. Check quickly around the neck for the cord. If you feel it, just hook it with your finger and pull it around the baby's head. Check again. Some are wrapped more than once. If the cord is so tight it cannot be slipped over the baby's head just wait until the baby is born to untangle it. Most cords are long enough to permit this. If the cord is too short to permit the baby to be born, it has to be cut and clamped and the baby delivered rapidly. In this situation the baby may be in distress because the oxygen supply was cut off prematurely. With the next contraction, one of the shoulders comes and then the whole body slips quickly out. If several contractions have passed without a shoulder coming, you may have to slip two fingers in and try to find an armpit. With one or two fingers hooked under the armpit, try to rotate the shoulder counterclockwise while pulling out. Usually this does it.

As the baby's head emerges, it is usually faced down. It then turns, so that the nose is turned towards the mother's thigh. Support the baby's head by cradling it in your hands. Do not pull or exert any pressure. Help the shoulders out. For the lower shoulder, support the head in an upward position. As the shoulders emerge, be prepared for the rest of the body to come quickly. Use the cleanest cloth or item available to receive the baby.

Make a record of the time and approximate location of the birth of the baby.

With one hand, grasp the baby at the ankles, slipping a finger between the ankles. With the other hand, support the shoulders with the thumb and middle finger around its neck and the forefinger on the head. (Support but do not choke). Do not pull on the umbilical cord when picking the baby up. Raise the baby's body slightly higher than the head in order to allow mucous and other fluid to drain from its nose and mouth. Be very careful as newborn babies are very slippery.

The baby will probably breathe and cry almost immediately.

If the baby doesn't breathe spontaneously, very gently clear the mouth of mucous with your finger. Stimulate crying by gently rubbing its back. IF all this fails, give extremely gentle mouth-to-mouth resuscitation. Gently pull the lower jaw back and breathe gently with small puffs--20 puffs a minute. If there seems to be excess mucous, use your finger to gently clear the baby's mouth.

The mother will probably want to hold the baby. This is desirable. If the umbilical cord is long enough, let her hold the baby in her arms. If the cord is short, support the baby on the mother's abdomen and help her hold it there.

It is of benefit to the baby and makes the afterbirth come with less bleeding if the baby can be allowed to suckle at the breast as soon as it is born. The cord should not be cut until the afterbirth has completely emerged.

Third Stage
The placenta delivery or afterbirth is expelled by the womb in a period of a few minutes to several hours after the baby is born. No attempt should be made to pull it out using the cord. Immediately following the afterbirth, there may be additional bleeding and a few blood clots. The womb should feel like a firm grapefruit just below the mother's navel. If it is soft, the baby should be encouraged to nurse, and the mother may be encouraged to gently massage the womb. These actions will cause it to contract and lessen the chances of bleeding.

If hemorrhaging occurs, do the following:

1. The uterus should be gently massaged to keep it hard.

2. The woman should lie flat, and the bottom of the bed should be elevated.
3. Put a cold pack (such as a small towel dipped in cold water and wrung out) on the lower tummy to irritate the uterus to contract.
4. Put pressure on the perineum with several sanitary napkins and the pressure of your hand.
5. Most importantly, have the baby nurse. Sucking stimulates the uterus to contract.

Another problem to be alert for is shock. Symptoms of shock are vacant eyes, dilated pupils, pale and cold or clammy skin, faint and rapid pulse, shallow and irregular breathing, dizziness and vomiting. If you notice any of these symptoms, keep the woman warm, slightly elevate her feet and legs, use soft lights, and talk softly and calmly to her.

The baby has some danger of getting an infection through the cut cord, so it should not be cut until sterile conditions are available. If there is a possibility of getting medical help within a few hours, do not cut the cord but leave it and the afterbirth attached to the baby. If there will be no medical help, wait until the afterbirth is out, or at least, until the cord is whitened and empty of blood. The cord should not be cut until it quits pulsating so the baby can have a transition time before he absolutely has to breathe on his own. As long as the cord is pulsating, the baby is still receiving oxygen from his mother.

If the cord is long enough, the baby can be put on his mother's tummy so she can hold him and talk to him. If not, the father should touch him and talk to him. After the cord has stopped pulsating and has become limp it can be clamped or tied about one inch from the baby's tummy with a cord or sterile cloth and then cut.

As the placenta separates from the uterus, the cord will appear longer. Wait for the delivery of the placenta. It will usually be about 10 minutes or longer before the placenta is delivered.

Never pull on the cord. When the placenta appears, grasp gently and rotate it clockwise. Then tie the cord in two places--about six inches from the baby--using strips of material that has been boiled or held in a hot flame.

The placenta and attached membranes must be saved for a doctor's inspection. Leaving the cord and placenta attached to the baby is messy but safe. Save all soiled sheets, blankets, cloths, etc., for a doctor's examination. Check the amount of vaginal bleeding; a small amount (1 to 2 cups) is expected. Place sanitary pads or other sanitary material around birth areas. Then cover mother and baby but do not allow them to overheat. Continue to check the baby's color and respiration. The baby should not appear blue or yellowish. When necessary, gently flick your fingers on the soles of the baby's feet; this will encourage it to cry vigorously.

The mother will probably need light nourishment and will wish to rest and watch her baby. She should keep her hand away from the area surrounding the birth outlet. If uncontaminated water is available, she may wish to wash off her thighs. She may get up and go to he bathroom or seek better shelter. All care should be taken to avoid introducing infection into the birth canal. The mother can expect some vaginal discharge for several days. This is usually reddish for the first day or so but lightens and becomes less profuse within a few days.

Stay with the mother until relieved by competent personnel. This is a relatively dangerous period for the mother, as hemorrhage and shock may occur. Almost all emergency births are normal. The babies typically thrive and the mothers recover quickly. It is very important when assisting with an emergency delivery that you continually reassure the mother and attempt to keep her calm.

Food Storage

If an emergency occurs often the delivery of food items is affected. If, as a family, we have a supply of basic items in storage, we can be prepared to care for ourselves and others.

The following basic items are recommended for storage. Indicated is the approximate amount of each needed to sustain an average adult for one year:

Grains (wheat, rice or cereals)	300	lbs.
Powdered milk (nonfat)	75	lbs.
Sugar or honey	60	lbs.
Beans & legumes	60	lbs.
Cooking oil or shortening	20	lbs.
Salt	5	lbs.

To these basic foods, others may be added according to availability, cost, and individual taste. Those frequently chosen are the dried legumes (peas, beans, peanuts, lentils which are high in protein and store well)-dried fruits and vegetables, and canned meats and fish. Dehydrated and freeze-dried foods may be included, however, foods preserved in this way are more expensive but they store well and better retain their vitamin content. It would also be a good idea to store (and use through rotation) a good multiple vitamin and mineral supplement.

People in highly mobile situations or those who have small homes with little storage area may find it more difficult to store a year's supply of food, clothing or fuel. However, it is better to have food storage sufficient for a few months than to have no storage at all.

Some of the best advice that you will receive is to “Store what you eat, and eat what you store”. Also, learning to use and rotate basic food items can decrease your food budget and lead to a healthier lifestyle.

Here are some suggestions that might be helpful as you build your storage:

- Obtain top grade food whenever possible.
- Carefully decide how and where you will store your food – the best conditions are cool, dry, and dark.
- High temperatures diminish the shelf life of your foods.
- Date food items as you purchase or can them – always use the older food first.
- Do not place containers on or against cement or dirt floors and walls. Allow for ventilation between and under storage containers.

It is never a good idea to go into debt to build your food storage.

Building a year's supply should be done in an orderly and systematic manner, consistent with a family's income. Often just purchasing an extra can or two at the grocery store can help in building your storage.

Store sufficient clothing and/or fabric for your family's needs for a year. If possible a year's supply of fuel should be stored. First-aid articles, prescribed medicines, soaps and cleaning agents, matches, bedding and other such necessary items should be included.

Wheat and Other Grains

Wheat is a very good item to have in your storage. It contains many vitamins as well as fiber. It is versatile in that you can grind it into flour or cook the whole kernels and use in a variety of dishes.

Buy dark hard winter or dark hard spring wheat that is #2 grade or better. Protein content should be from 12-15

percent. Moisture content should be 10% or less. The wheat should be clean and free from living insects and foreign matter.

After purchase, the wheat should be placed in a sturdy, moisture proof container; a 5 gallon airtight metal container with a tight fitting double-friction lid (seal is the same as a paint can) is a good container. Sturdy poly-ethylene plastic buckets with tight fitting lids are also acceptable for wheat storage. Don't store wheat directly on concrete floors. Keep cool and dry and away from steam, water pipes, un-vented clothes dryer, wet clothes, etc.

Wheat should be treated at time of storage to guard against hatching of insect eggs. If the wheat is stored in an airtight container, it may be treated with dry ice. Drop a piece (Not pulverized) of dry ice (one-fourth pound per 5gallon container) in the container and pour the wheat on top of it. Place the lid on, but not tightly, for five to six hours; then tighten the lid to be airtight.

Other methods of storage would include using the appropriate size oxygen absorber to fit your container. The wheat can also be placed in #10 metal cans or Mylar bags.

Other grains to consider storing are rye, triticale, corn, popcorn, barley, millet, rice, and oats. Pasta products can be counted in your grain quota.

Uncooked milled rice (white, par-boiled, and precooked) keeps indefinitely without refrigeration. Because of the oil in it's bran layers, brown rice has a shelf life of only about six months. Refrigerator or freezer storage is recommended. Cooked rice may be stored in the refrigerator for up to one week or in the freezer for six months.

Flour should never be stored by apples, onions, potatoes, etc. as it will absorb moisture from them causing it to spoil more quickly and it will also take up their flavors. It is not a good idea to store self-rising flours or others items with leavening agents. Store baking powder and baking soda separately.

Non-Fat Dry Milk/Dairy Products
Powdered milk may be purchased in both instant and regular forms. There is no nutritional difference between the two forms, and the storage life is equivalent.

Buy "extra" grade "low heat" powder. It should have been dried using a "low heat spray process". It should ideally also have been fortified with vitamins A and D.

Dry milk should be stored in a tightly covered container and stored in a cool, dry, and dark location up off the floor. Dry milk must be rotated, even if you package and store it correctly. Dry milk will store well at 40o F for 36-60 months and at 70o F. for 12-24 months. Dry milk will store longer when packed in vacuum or nitrogen.

Other dairy products which may be stored include: canned evaporated milk, canned baby formula, powdered baby formula, cream substitutes, cheese spreads, brick cheese, powdered cheese, margarine, butter, powdered butter, dried eggs.

Sugar or Honey
White sugar, brown sugar, powdered sugar, corn syrup and honey may be stored.

Honey kept for many months may darken slowly and become stronger in flavor but will still be usable. Honey and corn syrup may crystallize as they get older, but may be melted over hot water for use. The Honey Association recommends that infants under one year old should not be given honey because it is a raw product and may contain naturally occurring bacteria their systems cannot handle.

You may also wish to store jams and preserves, flavored gelatin and pudding mixes, powdered drink mixes, sweet toppings and syrups, candy, and soft drinks.

Salt
Iodized salt is best as it will help in proper functioning of the thyroid gland. Pickling salt may also be stored for bottling pickles and rock salt for making ice cream. Salt will store indefinitely but it is recommended that you

remove it from the original packaging because it will draw moisture if stored in the cardboard container. It works well to store it in clean, dry canning jars.

Fats and Oils
Twenty pounds of fats or oils per person should be stored for one year (1 gallon equals 7 pounds). Most cooking oils and shortenings will store for two to three years if kept in a cool dark, dry location. Olive oil and corn oil are also very good storage oils and have a better flavor than soybean and safflower oils. Fats and oils may be stored in the following forms: cooking oil (vegetable oil), shortening, butter (fresh and dried), margarine or margarine powder, mayonnaise, salad oils and dressings including dried mixes.

Dried Beans and Legumes
Beans, peas, lentils, etc. provide an economical substitute for meat or other animal protein. The packaged beans, which are on the grocery shelf, are normally the highest grades. Dry beans are an easily stored food. They should be kept in a tightly covered, metal, glass, or plastic container in a dark, dry, and cool location. The quality should be good for many years when stored under these conditions. Older beans will require longer soaking and cooking periods than freshly harvested beans.

Varieties of beans that may be stored are navy, pinto, kidney, black, lima, garbanzo, black-eyed peas, split peas, lentils, and soybeans.

Textured vegetable protein (TVP) is a vegetable protein made from soybeans, but its texture is similar to that of meat. When used with meat, good quality TVP absorbs the flavor and is difficult to distinguish from the meat. It can be bought as unflavored or flavored (beef, ham, bacon, or chicken). Shelf-life is two to three years. As it ages, it becomes stale.

Vitamin and Mineral Supplements
It is recommended that 365 vitamin or vitamin/mineral tablets or capsules be stored for each family member to help compensate for possible deficiencies in the diet due to a lack of variety of foods, and because of vitamins lost during food processing, storage, and preparation. Shelf-life is about three to five years if stored in a cool, dry and dark location.

Despite careful food planning, women may still need an iron and calcium supplement, particularly if they are pregnant or nursing. Storage of iron and calcium should be carefully considered.

Storing Garden Seeds
While the popular trend these days has been toward only growing hybrids, this is not a good policy for folks aiming at self sufficiency. First of all, the seed of hybrid vegetables does not grow true, should you save your own seed. You may get what you want, or you may not get taste, productivity, or even appearance. Only open pollinated (or “heirloom” “traditional”) varieties will produce seed which, when saved and planted next year, will give you the same results as the parent plant.
You can study your seed catalogs carefully. Any listed as “Hybrid” or “F1” should be avoided. Get in the habit of saving your own seeds. This simple practice can cut your gardening costs down by ¼ or ½ and can give you a measure of self-reliance in having the ability to produce your own food.

An additional reason to raise non-hybrids is that most of the open pollinated varieties taste better. That’s opposite what we have been led to believe...often by seed companies, who, by the way, often hold the rights to certain hybrids they developed and/or sell.

The good old heirloom varieties taste great. When we grow our own food, it is not trucked across the country nor is it stored in a refrigerated warehouse.

Buy withCare
Even with open pollinated seeds, there is a great deal of difference in the cost of the same varieties of seeds. Early in the year, send for several seed catalogs and carefully compare prices.

If you can, get together with gardening friends and relatives, buying seed as a co-op venture. Not only can you split larger packets of seed, but you save significantly on the shipping and handling.

Try not to buy seeds off the racks in stores. Here you will usually find those trusty hybrids along with higher prices. You can sometimes find seeds on sale but usually there are few seeds in the pack and you can buy and raise better varieties.

Remember you are developing your own seed bank and need to find great family favorites, not just yellow beans or sweet corn.

Plan Carefully
Raise only what you can take care of. You can get more tomatoes out of 12 plants, cared for like babies, than 40 plants left to weeds, insects, and other forms of neglect. If you have "left-over" space in your garden, tuck in a few squash, pumpkins, or plant it in rye or another form of green manure crop.

Assess your weed problem. If you don't have much of one, consider planting a good portion of your garden in wide rows or beds. Onions, carrots, beets, greens, and others grow well together, shading out all but major weed problems effectively. Garden peas can be grown in a bed rather than a row, picking the vine and all as the majority of peas ripen. Remember that commercial peas are grown in field conditions and mechanically harvested at one swipe. You can do this too, getting more peas per square foot as they support and shade each other as well as choking out any competing weeds.

Do not plant bush beans this way, as the plants are heavier, and the leaves of closely planted beans can end up interfering with pollination. It is definitely harder to pick beans well when they are crowded. I have found that a spacing between plants of 8 or even 12 inches (depending on variety), and rows 18 to 24 inches apart, yield much better than crowded plantings. It allows complete pollination (beans are largely self-pollinating), plus ease of picking the three or more flushes of bean crops.

Don't plant your tall corn where it will soon shade other heat/light-loving plants such as tomatoes. Don't plant vine crops, such as cucumbers, where they will crawl out onto carrot rows or beds. Plan many times—plant once!

Are you short of garden space? You'd be amazed at how many veggies you can grow in flower beds, tubs, buckets, and other containers, or in a very small garden plot. There are many varieties suitable for container growing, from determinate (bush-type) tomatoes, bush cukes, squash, peppers (which like a bit of crowding), and even onions, greens, and eggplant. Square-foot gardening is becoming very popular, and it is amazing what you can plant and harvest in a very small area.

Plant vining crops in the lawn, (dig out the sod in a circle two feet in diameter) where the grass is poor anyway, and let them sprawl, or plant them in flower beds next to the house, the garage, etc, and trellis them up on old fence wire or string. Tomatoes and cukes don't climb, but can be trained, tied gently at intervals as the vines grow. I've seen folks in apartments grow a huge garden on their roof. They just used recycled containers and a huge imagination.

No room to grow bush beans? Grow pole beans instead, trellising them up on a three-pole tipi or strings on the side of the garage. A few hills of pole beans will provide enough beans for a family to eat, plus a few pints to can as well.

Succession of Crops
You can get more bangs for the buck out of your garden, especially if you are limited in space, by planting successions of crops. For instance, instead of planting all late bush beans or corn, plant two or more crops in succession, using the same area as the early veggies. The beans help put nitrogen into the soil, and tilling keeps weeds to a minimum. If the weather is warm, corn zooms up, usually much exceeding the maturity dates in the catalogs.

The bottom line is that from a patch 30 feet by 10 feet you can get late sweet corn and the bonus of beans, greens, and more.

Never leave an area in the garden bare after crops have been harvested. If you don't need the area, plant it anyway—for seed, to barter, sell, or give to those who need it, or plant it into a green manure crop to further enrich the soil and discourage weeds.

Plant Wisely
Many gardeners always plant the entire packet. Now, who needs 1,500 radishes all at the same time, nine hundred summer turnips, and fifty zucchini plants?

Plant what you truly need. Few families need more than a two foot row of well planted radishes. But keep planting all summer and fall, and you'll always have nice mild, crisp radishes. You may only need two zucchini or summer squash plants.

Plant what you need, and then carefully close the packet and tape or staple it shut and pack it into a glass jar, sealing it against rodents, insects, and dampness. It'll keep until next year.

Have enough seed that you never plant all of what you have. This is common sense preparedness.

Most seeds keep well, for years if kept cool, dry, and in the dark. There are a few exceptions. Onions keep one year, and parsnips two years, but generally your personal seed bank should be treated as carefully as your financial bank.

Good Garden Care
To get the absolute most out of your garden, for the least money, it must receive good care. Limit the size of your garden to what you can truly handle. Maybe you need to limit the size next year to what really works. If you have a good tiller, great soil, and few weeds, your garden can be larger than if you till by hand, have poor soil, and a huge weed problem.

Your Own Plants
You can go out to the garden center or the market and buy tomato, pepper, and eggplants, often sold in four packs or six packs for better than two dollars each. But these may not be varieties that will taste good or perform well in your area, and they will most likely be hybrids. You will not be able to "save your own" from their seeds.

Instead, how about shopping those seed catalogs early and choosing some open pollinated traditional and heritage seeds that produce plants that do it all—taste great, perform well under your garden conditions, look pretty, and have the additional benefit of letting you save seeds to grow next year's plants?

Each packet contains from 30 to 150 seeds in most cases. This is enough to start plants for your family and a friend or relative this year, and to keep some for next year.

Starting the seeds is easy. Peppers (no matter what the pack says) should be started 12 weeks before you would even begin to think about setting them out, tomatoes 8 to 10 weeks, and the same for eggplant. Using seed starting medium from the nursery, fill the container (an old bread pan, flat, or whatever) and moisten the soil well with warm water, not soggy and certainly not dry. Then carefully place your seeds on top of the medium, keeping at least an inch apart in all directions. Plant a few more than you need, as some may not germinate and some may die. If I want a dozen finished plants, I plant about 20 seeds.

Cover the seeds evenly to about 1/8 inch, then gently sprinkle with hot water until moist, and cover with clear plastic leaving an air space between plastic and soil. Place in a warm place, such as on top of the fridge or on a high shelf. Warm air rises. Germination may take place in as few as three days, so check every day or the seedlings will quickly become too leggy to ever recover. Peppers usually take quite a bit longer, but check, just in case, as I've had some take right off.

Keep the medium damp, but never soggy or the seeds will rot. When the seedlings just begin to show up, move the container to a window where there is at least eight hours of strong light (a south window is best, never a north window). If there is not a good window, use a Grow Light or a two-bulb fluorescent shop light, with the plants only two to four inches below the light. As the plants grow, move the light up, keeping the same distance between plant and light. Keep turning those plants in the window, so they don't grow leaning toward the light, but straight and stocky.

When they get two sets of leaves, it's time to transplant to an individual container, or rows in a larger flat, keeping three or four inches between plants in all directions. An additional transplant is beneficial when they seem to be growing too large.

As warm weather comes, gradually harden these plants off by moving them outdoors in a protected location out of direct sun and high wind for a few hours in the morning. Then, gradually, leave them out longer, moving them to a less protected area. Be sure they do not dry out during this hardening off period. It's easy to forget them and have this happen. And watch those cold evenings as you begin to leave them out at night.

Now they're ready to plant, with protection, such as Walls-O-Water to warm them in case of cold. If you plant them without such protection, wait until all chance of frost is over and plant with some protection against the wind if needed in your area.

Sweet potatoes can be started from mother sweet potatoes, saved from last year's crop by inserting four toothpicks into the mother about half-way down, then place it in a glass full of water. Setting several on a sunny window ledge in late January, you will begin to see sprouts forming above the water line area. Slowly these develop into leaves which grow into the sprouts.

As soon as the nights are dependably frost free, just pull these sprouts out of the mother and set them into well worked, warm, damp soil on a nice day. Believe it or not, these rootless sprouts soon begin to grow and thrive. No cost sweet potato plants!

For Irish potatoes, do same way. Just save some of the nicest potatoes from the garden for seed for the next year. Save medium sized potatoes and plant the whole thing or half if it is very large. You might buy your first sets to try some different varieties. Then, when you find your favorite, just develop your personal seed bank, and never buy seed potatoes again.

Insect Control

Other than weeds, which most folks figure out how to control, insects cause the most loss of garden produce. All gardens do not have insect problems, but few of us are that lucky, especially if it is a relatively new garden.

Keep a close watch on each row or plant. Lift the leaves and really look. When you see insects, learn what they are. You don't want to kill a big group of lacewings thinking they are the bad guys, as they are your friends eating harmful insects. Learning about harmful garden insects is a great winter project.

If you just find one or two bad guys, such as potato beetles, for example, just pick and squash them. Then watch closely, as more may soon show up. If this is the case and they get thicker, then picking and squashing them will not work. Begin a treatment with an effective organic spray or dust. Again, studying books and catalogs will quickly provide you with the needed information. Only spraying once or spraying only when the problem is severe is not cost-effective as you will lose a lot of produce and not stop the insects. You must generally spray or dust after each rain or overhead watering. Often a week or so apart, even when the dusting doesn't wash off.

For corn ear worms begin spraying it when the corn is knee high, not tasseled out, not even showing ears. Then spray every week thoroughly. Your problem will soon disappear as the corn ear worm moths are not reproduced in cycles. Always be watchful, even years later.

Harvest Prudently

We've all had them—battleship sized cucumbers, string beans with golf ball sized beans. Not only is this wasteful (we could have had great pickles and beans), but allowing produce to mature on the vine/bush tells the plant to stop putting out flowers which stops further production. This is why picking the very first beans, even if a bit scarce, is necessary, to insure a heavier harvest, which will also last for a longer period of time. Keeping all cukes picked before maturity will allow a 20-feet row to provide all the salad cukes and all the pickles that an average sized family could possibly eat in a year.

You will want to let some ripen and mature so you can save your own seed. Choose only one or two plants, more for beans, peas, or corn. Choose your best plants, ear marked as seed producers. All the others are kept picked which more than doubles production.

Preserving Foods by Home Canning

Over the years, our understanding of food safety has grown along with new technologies in home food preservation and the development of new agricultural crop varieties. For these reasons, it is important to follow current guidelines for home canning rather than old recipes. While they might be family favorites, older recipes may not have been properly tested for appropriate heat processing times and temperatures, which can affect the quality and safety of your final product.

Today, we classify foods for canning into two types for proper preservation: high-acid and low-acid foods. Each type requires a different method of heat processing to reach the temperatures necessary to prevent the growth of harmful bacteria and other microorganisms.

Low-acid foods, with pH values higher than 4.6, must be processed at temperatures of 240°F for a specified length of time to destroy harmful bacteria. Because boiling-water canners cannot reach this temperature, low-acid foods must be processed using a steam pressure canner. Low-acid foods include vegetables, soups, stews, ragouts, meats, poultry and seafood.

High-acid foods, on the other hand, require heat processing to 212°F reached by using a boiling-water canner for a specified period. Since the pH of these foods is 4.6 or lower, meaning the acidity is high, bacteria and other spoilers do not readily grow. High-acid foods include fruits, fruit juices, jams, jellies and other fruit spreads, tomatoes with added acid, pickles, relishes and chutneys, sauces, vinegars and condiments.

Home canning allows us to supplement our food storage efforts with fresh-tasting fruits, vegetables, and meats.

An Important Checklist
Make sure you're totally ready to get started by following a few simple preparations:

INSPECT YOUR JARS. All jars should be free of cracks or nicks in the rims. If any are damaged, don't use them because they can cause food to spoil. Also, be sure you have enough jars for the task at hand.

CHECK JAR TOPS. If you're using the two-piece vacuum caps and lids, make sure you have enough, that they're all new and rust-free, and that the screw bands are also rust-free. Make similar checks with other types of lids.

USE COMPLETELY CLEAN EQUIPMENT. If you're pressure canning, check the gauge on your pressure canner to be sure it's functioning properly.

WASH AND RINSE JARS THOROUGHLY. Use dish detergent, rinse well. Set jars in clean, hot water until used. If using dishwasher, keep jars in dishwasher until ready to use.

MAKE SURE LIDS AND BANDS ARE CLEAN. Follow manufacturer's instructions. Most recommend placing in simmering water for up to 10 minutes.

REMOVE BLEMISHES FROM PRODUCE. Cut out any dark spots, whatever is discolored or doesn't look right and fresh.

SCRUB PRODUCE. Thoroughly wash and rinse produce.

HAVE ENOUGH ROOM TO WORK. Crowding can cause spillage, breakage, etc.

Home Canning Essentials for All Foods

1. Use only the best, top quality ingredients. Preserve fruits and vegetables at their peak of ripeness.
2. Process ALL home canned foods.
   High-Acid Foods in a Boiling-Water Canner
   Low-Acid Foods in a Steam-Pressure Canner
3. Follow only current, tested home canning recipes that
   - include the appropriate processing method for the food type being canned;
   - give a specific processing time for the food type and size home canning jar used;
   - designate headspace;
   - come from a reputable source offering up-to-date recipes, following acceptable canning guidelines.
4. Follow manufacturer’s directions for preparing home canning jars and two-piece vacuum caps.
5. Fill hot jar with prepared recipe. Leave recommended headspace. Remove air bubbles by sliding a nonmetallic spatula between the jar and food; press gently on the food to release trapped air. Repeat around the circumference of the jar.
6. Wipe rim and threads with a clean, damp cloth. Center heated lid on jar. Screw band down evenly and firmly until a point of resistance is met – fingertip tight.
7. After processing, remove jars from canner; set jars upright on a towel to cool. Do NOT retighten bands or check for a seal while jars are hot.
8. After 24 hours, check lids for a seal. Sealed lids curve downward. Press the center of the lid to ensure it does not flex up or down. (Reprocess or refrigerate any unsealed jars.) Remove bands. Wipe jars and lids with a clean, damp cloth and dry. Wash bands in soapy water, dry and store.
9. Label and store jars in a cool, dry, dark place. For best quality, use home canned foods within one year.

Suggestions on Storage of Canned Foods
When storage foods are processed in metal cans coated with tin or enamel linings, the question frequently arises as to the length of time the foods can be safely stored for human consumption. Canned foods that have been in storage for a long period of time in cans, that are not bulged or leaking are safe to eat as the first day packed. However, they may have lost some of their flavor due to a chemical reaction in the can. This reaction is not poisonous, but does alter the flavor, texture, and nutritive value. The rate at which chemical reactions occurs doubles with each 18 degrees Fahrenheit rise in temperature. Fifty degrees Fahrenheit storage will hold four times longer than an 80 degree Fahrenheit temperature.

Due to the various temperatures where canned food may be stored, it is difficult to determine the definite period of time at which all canned foods will hold. The short shelf life products are highly acid and pigmented foods such as grapefruit and orange juice, black and red cherries, all colored berries, prunes and plums. These canned foods generally have an average storage life of one to two years. Other fruits such as peaches, pears, apricots, and applesauce should average from two to three years. Vegetables such as beets, carrots, green beans, spinach, greens, tomatoes and tomato juice should have an average storage life from three to four years. Vegetables and meats such as peas, corn, lima beans and roast beef should have an average from four to five years. Canned milk should be agitated every thirty days. This prevents the fats from separating, and the product should be consumed within a year.

Canned goods should be stored in a cool, dry place; the cooler and dryer the canned goods are kept, the longer they will last. Place the oldest canned goods on the shelves so that they will be used first. Fruits, vegetables, and meats properly processed in glass jars and stored in the home will keep in a cool, dark, dry place fully as long as canned goods. Some fruits, such as the highly pigmented, will keep longer in a glass container.

Food Storage Recipes

Basic Bread and Roll Recipe
1 ½ cup hot water (boiling)
1 cup cold milk
3 eggs, slightly beaten
⅓ cup canola oil
⅓ cup honey
4½ t. instant yeast
6-7 cups freshly-milled whole wheat flour (white)
1 T. salt

Combine milk, oil, honey, and eggs in mixing bowl. Add hot water and mix thoroughly. Combine yeast, flour, and salt in separate bowl. Mix. Add 2-3 cups of flour mixture to wet mixture and mix. Continue adding flour mixture until dough begins to pull away from the bowl. Grease hands and put dough out on kneading board. Keeping hands lightly greased, knead dough for at least 5 minutes. You may continue to add flour as needed up to a total of 7 cups of flour. Adding too much flour will cause the dough to be too stiff and will cause loaves to crack during baking.

After dough forms a smooth ball, turn into lightly greased bowl and let rise in a warm place. When dough has doubled, punch down and turn out on board to begin making loaves. Divide dough into three pieces. Roll each piece into a rectangle. Roll up and tuck the ends under to form a loaf. Let loaves rise in pan until they just get over the top of the pan. This recipe makes 3 small loaves, 2 large loaves or approximately 30 dinner rolls. Bake loaves at 350° for 25-30 minutes. When taking from oven, brush lightly with butter for a softer crust.

Very Basic Whole Wheat Bread
2 cups hot water
½ cup oil (⅓ cup if using egg)
½ cup honey
3½ t. instant yeast
1 egg (optional)
5 cups whole wheat flour
2 t. salt

Combine water, oil, and honey. Add 3 cups of flour, yeast, and salt. Mix thoroughly. Add remaining flour and knead until smooth and elastic. Let rise until double. Shape into loaves or rolls and place in greased pans. Let rise again. Bake at 350° for 20-30 minutes. Makes two medium loaves.

Note: This recipe calls for instant yeast. With instant yeast, you may add it with the flour and other dry ingredients. You do not need to sprinkle it over the liquids. One package of yeast is about 2 ½ teaspoons. It is much cheaper to buy it in bulk rather than in the packages.

Baking Powder Biscuits
2 cups wheat flour
2 t. baking powder
½ t. salt
½ t. baking soda
5 T. butter
2 T. mayonnaise
¾ cup buttermilk

Mix dry ingredients. Cut in butter. Stir in mayonnaise and buttermilk. Turn onto lightly floured board. Knead just to make smooth ball. Pat to ½" thickness. Cut with biscuit cutter and place with sides touching in ungreased 9 x 13 pan. Bake at 450° for 10-12 minutes. Makes about 10 biscuits.

Using Dried Beans
Dry beans can be ground to a fine flour using a hand grinder for small quantities, or electric mills for larger quantities. Bean flour stores for up to 6 months on the shelf, 1 year under refrigeration, and is great to have on hand for "instant" soups, sauces, dips, sandwich fillings and gravies, and to add extra nutrition to almost everything you cook or bake.

Use 2 T. white bean flour per cup of liquid for thin soups or just to add flavor and color, 3 T. for medium-thick and 4-5 T. for thick soups, stews, or gravies. Whisk into soup stock or use hot water flavored with bouillon or soup base.

3 Minute Cream of Chicken Soup
6 c. boiling water
1 cup white bean flour (white beans ground in a wheat grinder to a fine white powder)
2 T. chicken soup base
1 cup diced chicken pieces (optional)

In a medium saucepan over medium heat, whisk bean flour into boiling water and add base. Stir and cook 3 minutes. Blend for 1-2 minutes. Add chicken, if used. Serves 3-4.

Lentil Soup
4 cups hot water
4 T. lentil flour
2 t. lentil soup seasoning

In a medium saucepan over medium, whisk bean flour into boiling water. Stir and cook for 3 minutes. Add seasonings. Serves 3-4

Cheese Sauce
Mix well:
⅓ cup Cheddar cheese powder (available from bulk food stores)
2 T. cornstarch
1 t. salt
1 T. salad dressing
¼ cup cold water or milk
Add:
1½ cup boiling water

Bring to a boil over low heat, stirring constantly. Cook until thick and smooth. More or less cheese powder may be used to suit taste. This is delicious over baked potatoes, broccoli, for use in macaroni and cheese, or with other pastas.

Breakfast Ideas Using Food Storage Items
Whole wheat pancakes
Cornbread with jam or honey
Oatmeal
French toast with fruit syrup
Muffins
Scones
Granola
Canned fruit
Fruit shakes (overripe banana, dried milk, orange juice, handful of frozen strawberries,
1 T. honey)

Create a Muffin
Grain: Use 2 – 2 ½ cups of white flour or a combination of white flour, oatmeal, cornmeal, or whole-wheat flour

Milk: 1 cup or a combination of buttermilk, sour milk, or fruit juice

Fat: ¼ cup vegetable oil or a combination of melted butter or creamy peanut butter

Egg: 1 whole egg or 1 heaping tablespoon of soy flour mixed with 1 T. of water

Sweetener: ½ cup sugar or ¾ cup brown sugar, ½ cup honey, or molasses

Leavening: 2 t. baking powder. If using whole or cooked grains or more than 1 cup of additions, increase to 3 t. If using buttermilk or sour milk, decrease to 1 t. and add ½ t. baking soda

Salt: ½ t. (can be omitted)

Dry Additions: Nuts, sunflower seeds, raisins, coconut, dried cherries

Moist Additions: Blueberries, chopped apples, freshly shredded zucchini, shredded carrots

Wet Additions: Pumpkin, applesauce, mashed banana

Spices: 1 t. cinnamon with ¼ t. nutmeg or cloves or 2 t. grated orange or lemon peel

Jellies and Jam: Fill cups half full of plain batter. Add 1 t. jam or jelly and top with 2 more tablespoons batter.

Topping: Sprinkle cinnamon sugar on batter.

Non-sweet Combinations: use only 2 T. sugar and no fruit. Add any of the following: ½ cup shredded cheese, 3 strips fried and crumbled bacon, 2 T. grated onion, ½ cup shredded zucchini

Combine dry ingredients and then mix in wet ingredients until just combined; the batter should be lumpy. Grease muffin tin and fill cups two thirds full. Bake in preheated oven at 400° for 20 minutes.

Granola (Good served with dried milk, homemade yogurt, or canned fruit)
8 cups rolled oats
1 cup coconut
¾ cup wheat germ
¾ cup wheat flour
1 cup dried milk
½ cup sunflower seeds
¼ cup sesame seeds
1 cup brown sugar

Mix all ingredients. In small saucepan, heat ½ cup oil, ⅔ cup honey until warm. Add 2 t. vanilla and mix with dry ingredients until coated. Spread on cookie sheet and bake at 350° for 30-45 minutes. Stir every 10 minutes while baking. Add dried fruits when you take out of the oven. Store in airtight container. Makes about 4 quarts.

Baked Oatmeal
1 ½ cups quick oats
½ cup white or brown sugar
½ cup milk
¼ cup margarine, softened
1 egg
1 t. baking powder
½ t. cinnamon
¾ t. salt
1 t. vanilla

Combine ingredients. Mix well. Spread evenly in greased 9 x 13 pan. Bake at 350° for 25 minutes or until light golden brown on top. Spoon in bowls and add milk. Can be topped with fresh or canned fruit and brown sugar.

Scones
1 cup all-purpose flour
1 cup whole-wheat flour
3 T. brown sugar
2 t. baking powder
½ t. baking soda
½ t. salt
⅓ cup butter or margarine
1 (8 oz.) carton dairy sour cream
1 egg, separated and beaten

Stir together flours, brown sugar, baking powder, baking soda and salt in large mixing bowl. Using a pastry blender, cut in butter until mixture resembles coarse crumbs. Make a well in center of mixture. Combine sour cream and egg yolk in small bowl. Add sour cream mixture to flour mixture. Using a fork stir just until moistened. Turn the dough out onto a lightly floured surface. Quickly knead dough by gently folding and pressing dough for 10-12 strokes. Place dough on baking sheet. Roll into a 9-inch circle. Cut into 8 wedges but do not separate. Brush scones with egg white. Bake at 400° for 10-12 minutes or until light brown. Serve warm.

*This recipe works well with substitutions (buttermilk for sour cream). Also lots of good add-ins: orange peel, cinnamon, raisins, dried cherries, chocolate chips, etc.

Cocoa Cake and Brownie Mix
9 cups all-purpose flour (or freshly ground white wheat flour)
6 teaspoon baking powder
6 teaspoon salt
12 ½ cups sugar
12 ounces unsweetened cocoa powder

In a large bowl, combine all ingredients. Mix well. Store in an airtight container in a cool dry place. Mix will keep for 2 to 3 months. Be sure to label and date.

For c**ocoa cake**, bring 1 cup water and ¼ cup butter or margarine to a boil in a saucepan. In a large bowl, combine hot water and butter with 2 cups Cocoa Cake and Brownie mix, ¼ cup dairy sour cream, 1 beaten egg, and ½ teaspoon baking soda. Blend. Pour into a greased cake pan. Bake at 375° for 20 minutes or until done. Makes one layer. Double recipe for a two layer cake.

For **brownies**, mix 2 ¼ cups Cocoa Cake and Brownie mix, 2 eggs, 1 teaspoon vanilla extract, and ¼ cup melted butter or margarine. Blend well. Add ½ cup chopped walnuts if desired. Pour into a greased and floured 8-inch pan. Bake 350° for 30 to 35 minutes.

For **cocoa cookies**, beat together ¼ cup melted butter or margarine, 2 eggs, and ¼ cup plus 1 teaspoon water. Add 2 ¼ cups Cocoa Cake and Brownie mix, ½ teaspoon baking soda, ¾ cup flour and 1 teaspoon vanilla extract. Blend well. Drop by teaspoonfuls onto greased cookie sheets, approximately 2 inches apart. Bake 10 to 12 minutes at 375°, or until edges are brown. Cool. Makes about 3 dozen cookies.

"Fooled You" Brownies
1 cup honey
½ cup buttermilk or sour milk
½ cup butter
2 eggs
1 cup water
⅓ cup cocoa or carob powder
1 cup oat flour
1½ cups whole wheat flour
1 t. soda
½ t. salt
Carob or chocolate chips
Chopped walnuts

Substitutions:

You can use ⅓ cup butter plus 1 T. olive oil for the ½ cup butter.
You can use ¾ cup barley flour and ¾ cup brown rice flour for the whole wheat flour.

To make oat flour, simply process oatmeal in a blender until powdery or you can put whole oats in your wheat grinder.

Beat wet ingredients until smooth. Add dry ingredients, blending well. Spread in a 9 x 13 pan and sprinkle surface with chips and walnuts. Bake for approx. 30 minutes at 375°. Cool and cut in bars to serve.

Growing Sprouts

Sprouts are tasty and delicious, and growing them is a simple process, although it does require a few minutes of your time each day to get quality sprouts. They can be grown year-round, and provide an opportunity for simple gardening projects for limited spaces and for children. Seeds often used for sprouting include mung bean, soybean, lentil and alfalfa.

When purchasing seeds for sprouting, be sure to get seeds that have not been treated with fungicide, insecticide or any other material. This type of seed is available at health food stores and many supermarkets.

To grow sprouts, begin with a clean, wide-mouth quart jar. This size allows you to grow up to two cups of sprouts with little difficulty. The wide mouth allows easier removal of the sprouts with minimal damage.

Cover the bottom of the jar with the desired amount of seed, generally not more than ¼ cup. (Depending on the type of seed that is used, only one to two tablespoons may be required to fill a jar.)

Cover the mouth of the jar with cheese cloth and secure with a rubber band or screw-top ring, or use a commercially available screw-top sprouting lid. Soak the seeds for 8-12 hours in a volume of water at least double the seeds. This will soften the seed coat for sprouting.

After soaking, drain off the water and rinse the seeds. After the rinse water has been drained off, invert the jar and prop it at an angle with seed distributed evenly along the side of the jar. By placing the jar at an angle, the sprouts will have good drainage and air circulation.

Keep the jar in a dark place, at 68-70° F. Sprouts grown in a light location will turn green and may be bitter and tough.

Continue to rinse the sprouts two to four times a day until they have grown to the desired length. Always be sure excess water is drained off the sprouts: if the sprouts remain in the water they could ferment and spoil.

Some seeds need only to be sprinkled over a moist paper towel to sprout. Again, keep the seeds in the dark while they sprout, and keep them moist.

Most sprouts will take two to five days to grow to their optimum size. Wash them thoroughly to remove the seed coat, if necessary. Sprouts may be kept for one to two weeks in the refrigerator if kept in a sealed container. Sprouts may be frozen by blanching them over steam for three minutes and cooling them in ice water. Drain them and pack into freezer containers.

DO NOT SPROUT TOMATO OR POTATO SEEDS – They are generally poisonous to humans.

Sprouting Guide

Kind of Seed	Amount Needed to Sprout 1Qt	Sprout Length	Sprouting Time (Days)	Special Handling
Alfalfa	1T	1" - 2"	3-5	Soak in warm water 10-15 min. Drain, place in dark, warm spot. Rinse 3 times daily until mature. Rinse daily with cold water during storage to prevent mold
Barley	1/2 C	1/4"	3-4	Rinse Often
Beans	1/2 C	1/4"	2-3	Kidney lima, navy, pinto and white
				beans interchangeable in recipes
Corn	1/2 C	1/4"	2-3	Avoid over sprouting.
Cress	1/4 C	1/2"	3-4	None
Garbanzo	1/2 C	2"	2-3	None
Lentil	1/2 C	2"	1-2	Use when sprout becomes visible.
Mung	1/4 C	3"	3-4	Rinse in cold water to remove hulls.
Oat	1/4 C	1/4"	2-3	None
Pea	1/2 C	2"	2-3	None
Peanut	1/4 C	1/4"	2-3	None
Radish	2 T	1/2"	3-4	None
Rye	1/2 C	1/4"	2-3	None
Sesame	1/4 C	1/2"	3-4	None
Soybean	1/2 C	4"	2-3	Rinse often and do not over sprout.
Sunflower	1/4 C	1/4"	2-3	None
Triticale	1 C	1/4"	2-3	Rinse off-substitute for wheat.
Wheat	1/4 C	1/4"	2-3	Becomes bitter when over sprouted.

Bare-Minimum Food Storage Requirements

1 adult male for 1 year, approximate 2,300 calories per day. (Only 695 lbs total)
This will keep you fed, but leave you hungry. **TOTAL FOOD PER DAY = 24.65 Ounces**

Grains (400 lbs)
Unless your family already eats 100% whole wheat homemade bread, white flour should be used in the transition process to whole wheat. Adding rye flour (10%) helps make wheat bread a more complete protein. Dent corn is used to make tortillas.

Beans & Legumes (60 lbs)
Black beans cook quickly, make a good salad complement with a vinaigrette dressing over them. Soybeans can be used to make soy milk and tofu, a protein food you should be prepared to make. Familiarize yourself with sprouting techniques. Learn how to make wheat grass juice - the best vitamin supplement you can use.

Milk-Dairy products (16 lbs)
Milk powder can be used to make cottage cheese, cream cheese and hard cheeses. Ideally your milk should be fortified with Vitamins A & D. When reconstituting aerate to improve flavor (special mixing pitchers can accomplish this). Whole eggs are the best all-purpose egg product. Powdered sour cream has a limited shelf life unless frozen.

Meats / Meat substitute (20 lbs)
Use meat in soups, stews and beans for flavor. Freeze dried is the best option for real meat. Textured vegetable protein is the main alternative to freeze dried meats.

Fats / Oils (20 lbs)
This group can boost the calories one is getting from food storage products, and supply essential fatty acids.

Sugars (60 lbs)
Store your honey in 5 gallon pails. Candy and other sweets can help with appetite fatigue.

Fruits / Vegetables (90 lbs)
Some fruits and vegetables are best dehydrated, others freeze dried (strawberries & blueberries). Fruits are a nice addition to hot cereal, muffins, pancakes and breads.

Auxiliary foods (weight varies)
Vanilla extract improves the flavor of powdered milk. The production of tofu requires a precipitator such as nigari, Epsom salt, calcium chloride or calcium sulfide (good calcium source). Learn how to make and use wheat gluten (liquid smoke adds good flavor). Chocolate syrup and powdered drink mixes help with appetite fatigue. Vitamins and protein powders will boost the nutrition levels of foods that may have suffered losses during processing.

Note: For an average adult Female - multiply the weight by 0.75 For children ages 1-3 multiply by 0.3, 4-6 multiply by 0.5, 7-9 multiply by 0.75 For adults engaged in manual labor multiply by 1.25-1.50

Do you REALLY have a year's supply?

Just how big is a Year's Supply of food? As explained on the previous page, it is suggested to have the following minimums for each adult:

400 lbs.	Grains	(17.5oz / day)
60 lbs.	Beans	(2.6oz / day)
10 qts.	Cooking oil	(0.87oz / day)
60 lbs.	Honey	(2.63oz / day)
8 lbs.	Salt	(0.35oz / day)
16 lbs	Powdered milk	(0.70oz / day)
14 gals	of drinking water (for 2 weeks)	

So, just how much is this?

Two 5 gallon buckets will hold about 75 lbs of wheat, rice or other grains. This means you need 11 buckets of grain for each person in your family.
If you store all your grains in #10 cans...

Wheat, Rice, Corn, etc..
You would need 64 cans or 10.5 cases per person.

Pasta
You would need 32 cans or 5.25 cases per person.

Rolled oats
These are lighter but bulkier, so they require more storage containers and space. You would need 124 cans or 21 cases person

Beans
A 25 lb bag of beans will about fit in a single 5 gallon bucket, with a little space over, so 2 buckets would hold a one person supply, or 12 -13 # 10 cans or about 2 cases.

Daily Food
Dividing 400 lbs by 365 days equals out to 1.09589 lbs, or just over 1 lb of grain, per person, per day. That is approximately 2 cups of ungrounded grain to cover your breakfast lunch and dinner.

Dividing 60 lbs by 365, this works out to 0.16 lbs of beans per day, or 2.6 oz—approximately ¾ cup.

The other foods listed would also need to be used in limited amounts.

This is not much food, folks. Get the basics, then immediately begin to add more kinds of grain, soup mix, canned and/or dehydrated vegetables and fruit, etc to add variety and provide more than the minimal survival diet.

As an example, the minimum recommended amount of grain, when ground and prepared will yield about 6 small biscuits or a plateful of pancakes. Its enough to keep you alive, but a far cry from being satisfied and not hungry.

The Seven Major Mistakes in Food Storage

By Vickie Tate

A month or two ago I met a cute little gal who was talking to me about her newly begun food storage. "You know," she began, "I've dreaded doing my food storage for years, it seems so blah, but the way national events are going my husband and I decided we couldn't put it off anymore. And, do you know, it really hasn't been hard. We just bought 20 bags of wheat, my husband found a place to get 60 pound cans of honey, and now all we have to do is get a couple of cases of powdered milk. Could you tell me where to get the milk?" After I suggested several distributors, I asked, "Do you know how to cook with your wheat?" "Oh," she laughed, "if we ever need it I'll learn how. My kids only like white bread, and I don't have a wheat grinder." She had just made every major mistake in storing food (other than not storing anything at all.) But she's not alone. Through 14 years of helping people prepare, I found most people's storage starts out looking just like hers. So what's wrong with this storage plan? **There are seven serious problems that may occur trying to live on these basics:**

1.) VARIETY

Most people don't have enough variety in their storage. 95% of the people I've worked with only stored the 4 basic items we mentioned earlier: *wheat, milk, honey, and salt*. Statistics show most of us won't survive on such a diet for several reasons. a.) **Many people are allergic to wheat** and may not be aware of it until they are eating it meal after meal. b.) **Wheat is too harsh for young children.** They can tolerate it in small amounts but not as their main staple. c.) **We get tired of eating the same foods** over and over and many times prefer not to eat than to sample that particular food again. This is called *appetite fatigue*. Young children and older people are particularly susceptible to it. Store *less* wheat than is generally suggest and put the difference into a variety of other grains, particularly ones your family likes to eat. Also store a variety of beans. This will add variety of color, texture and flavor. **Variety is the key to a successful storage program.** It is essential that you *store flavorings* such as tomato, bouillon, cheese, and onion.

Also, *include a good supply of the spices* with which you like to cook. These flavorings and spices allow you to do many creative things with your grains and beans. Without them you are severely limited. One of the best suggestions I can give you is *buy a good food storage cookbook*. Go through it and see what your family would really eat. Notice the ingredients as you do it. This will help you more than anything else to know what items to store.

2.) EXTENDED STAPLES

Few people get beyond storing the four basic items, but it is extremely important that you do so. *Never put all your eggs in one basket*. Store **dehydrated and/or freeze-dried foods** as well as home canned and store bought canned goods. Make sure you add cooking oil, shortening, baking powder, soda, yeast and powdered eggs. You can't cook even the most basic recipes without these items. Because of limited space I won't list all the items that should be included in a well-balanced storage program. They are all included in *The New Cookin With Home Storage* cookbook, as well as information on how much to store, and where to purchase it.

3.) VITAMINS

Vitamins are important, especially if you have children, since children do not store body reserves of nutrients as adults do. *A good quality multi-vitamin and vitamin C* is the most vital. Others may be added as your budget permits.

4.) QUICK AND EASYAND PSYCHOLOGICAL FOODS

Quick and easy foods help you through times when you are psychologically or physically unable to prepare your basic storage items. **No cook foods such as freeze-dried** are wonderful since they require little preparation. **MRE's** (Meals Ready to Eat), such as many preparedness outlets carry, canned goods, etc. are also very good. Psychological Foods are the goodies - Jell-O, pudding, candy, etc. - you should add to your storage. These may sound frivolous, but through the years I've talked with many people who have lived entirely on their storage for

extended periods of time. Nearly all of them say these were the most helpful items in their storage to normalize their situations and make it more bearable. These are especially important if you have children.

5.) BALANCE

Time and time again I've seen families buy all of their wheat, then buy all of another item, and so on. Don't do that. It's important to **keep well-balanced as you build your storage**. Buy several items, rather than a large quantity of one item. If something happens and you have to live on your present storage, you'll fare much better having a one-month supply of a variety of items than a year's supply of two to three items.

6.) CONTAINERS

Always store your bulk foods in food storage containers. I have seen literally tons and tons of food thrown away because they were left in sacks, where they became highly susceptible to moisture, insects and rodents. If you are using plastic buckets make sure they are lined with a food grade plastic liner available from companies that carry packaging supplies. **Never use trash can liners** as these are treated with pesticides. Don't stack them too high. In an earthquake they may topple, the lids pop open, or they may crack. A better container is the #10 tin can which most preparedness companies use when they package their foods.

7.) **USE YOUR STORAGE**

In all the years I've worked with preparedness one of the biggest problems I've seen is people storing food and not knowing what to do with it. It's vital that you and your family become familiar with the things you are storing. You need to know how to prepare these foods. This is not something you want to learn under stress. Your family needs to be used to eating these foods. A stressful period is not a good time to totally change your diet. Get a food storage cookbook and learn to use these foods! It's easy to solve these food storage problems once you know what they are. The lady I talked about at the first of the article left realizing what she had stored was a good beginning, but not enough. As she said, "It's better to find out the mistakes I've made now while there's still time to make corrections." This makes a lot more sense.

If you're one who needs to make some adjustments, that's okay. Look at these suggestions and add the things you're missing. It's easy to take a basic storage and add the essentials to make it livable, but it needs to be done. As I did the research for my cookbook I wanted to include recipes that gave help to families no matter what they had stored. As I put the material together it was fascinating to discover what the pioneers ate is the type of things we store. But if you have stored only the 4 basics, there's very, very little you can do with it. By adding even just a few things it greatly increases your options, and the prospect of your family surviving on it. As I studied how the pioneers lived and ate, my whole feeling for food changed. I realized our storage is what most of the world has always lived on. If it's put together the right way we'll be returning to good basic living with a few goodies thrown in.

Spoilage

Insect Infestations

Pests of Stored Grains, Legumes and Dry Foodstuffs

Insect infestations can occur in a wide variety of foodstuffs such as flours, meals, pastas, dried fruits or vegetables, nuts, sweets, whole grains, beans, sugars, TVP, jerky, bird seed, and pet foods.

Naturally, the best way to deal with an insect infestation is not to have one in the first place. Try to purchase your goods from suppliers who are clean and who turn over their inventory quickly so the products you purchase will be less likely to have bugs.

When you buy foodstuffs examine them closely to be sure they are free of insects. Check for any packaging or use by dates to insure their freshness. Don't shake the package, most adult insects will be found in the top couple of inches of the product and shaking the package will mix them into the contents disguising their appearance. If the package does turn out to be infested, return it for replacement.

If not already packaged for storage when you buy them transfer your foods into air- and moisture-tight containers so they cannot be invaded after you have brought them home. With sufficient time, some adult and larval insect forms can penetrate paper, cardboard and thin plastic packaging. Storage containers should be glass, metal, or heavy plastic with tight fitting lids. As with everything in food storage, you should use older packages before newer ones and opened packages before unopened ones.

Storage areas should be kept clean. Don't allow grain, flour, beans, bits of pasta, or other food particles to accumulate on shelves or floors. Cracks and crevices should be sealed or otherwise blocked. Except for sticky spills, vacuuming is the best method of cleaning as soap and water can wash food particles into cracks.

Insects may also get their start in chairs, sofas, and carpets where food is dropped and not cleaned up. Don't forget to replace the filter bag on the vacuum as some insects can survive and reproduce in the bag.

Bags of dry pet food and bird seed can harbor insect infestation. Decorative foodstuffs such as ears of colorful Indian corn, colored beans and hard squashes can carry insects that may infest your edible food. Even poison baits can harbor flour beetles.

Control of Insect Infestations

Should you find that in spite of buying fresh products and using careful packaging techniques you have an insect infestation, you can try some of the following steps:

1. If the food is too heavily infested to try to save, it should be disposed of as soon as possible. Remove from the kitchen or food storage area immediately so as to not infest other foods.
2. Large bugs can be sifted or winnowed out if the food's not too heavily infested and you want to try to save it. Then treat by placing into a deep freezer at 0º F (-18º C) for three to seven days depending upon the size of the package. Refrigerator freezers usually do not freeze low enough to effectively kill all of the life stages of insects, but if left there, will slow their development. If freezing is not workable then the product could be spread on baking sheets and heated to 150º F for fifteen to twenty minutes, cooled and repackaged. This will shorten shelf life so heat treated foods should be consumed shortly thereafter.
3. The surface areas where the food containers are stored can be treated with an insecticide. This is not a replacement for clean storage habits and good containers, but is rather a supplement. This will not control insect infestations already in your stored foods.

Spray the shelf surface with 0.5% chlorpyrifos (Dursban), 1% propoxur (Baygon), 0.5 percent diazinon, or 0.25 percent resmethrin. You can find any of these in the hardware store in ready to apply packages. If a sprayer isn't feasible then they can be applied with a paint brush. Allow the solution to dry thoroughly. Cover the shelves

with clean, untreated shelf paper then put properly packaged foods back on shelves. READ THE PRODUCT LABEL FOR SAFETY INFORMATION CONCERNING CHILDREN AND PETS.

Household bleach, Lysol, and other sterilizers will not control insect infestation, though they can be used for mold, mildew, and algae.

You may continue to find some insects after the cleanup is finished. This could be for several reasons. It may be they escaped from the packages they were infesting and did not get cleaned up. There may be more packages infested than were originally found, or there may be hiding places in the storage area that need attention. Once you have carefully eliminated all food sources, the bugs should disappear in a few weeks.

Molds in Food

Molds are fungi like mushrooms and yeast. Also like mushrooms, they reproduce by releasing spores into the air that land on everything, including your food and food storage containers. If those spores begin to grow, they create thin threads that spread through their growing medium. These threads are the roots of the mold fungus, called *mycelium*. The stalk of a mold fungus is the portion above or on the surface of the food. It produces the spores and gives the mold its color. We've all seen examples of this when we discover a dish of something or other left too long in the refrigerator only to become covered in mold fuzz.

Molds can grow anywhere they have a growing medium (their food), sufficient moisture and warmth. Some can even grow at refrigerator temperatures, albeit more slowly than they would if it were warmer. These fungi can also withstand more salt and sugar than bacteria, which is why you sometimes find mold in jellies and jams with their high sugar content and on dry cured products like ham or bacon with their high salt content.

In the past, a slight amount of mold was commonly felt to be harmless and the food consumed anyway. For molds that were intentionally introduced, such as the mold in bleu cheese, this is fine. For the unintentional molds, it could possibly be a serious error in judgment. These unwanted molds could be producing toxic substances called mycotoxins which can be very bad indeed. Mycotoxins are produced around the root or mycelium of molds and these mold roots can penetrate deeply into the food. Mycotoxins can survive for a long time and most are not destroyed by cooking. The molds probably best known for this dangerous spoilage are the various Aspergillus species which produces a mycotoxin known as aflatoxin, but there are other dangerous fungi as well, such as the Fusarium molds. Both of the above affect grains and some legumes.

IMPORTANT NOTE: In wet pack foods such as your home canned goodies, molds can do something else as well, possibly with lethal consequences. If they find their way into wet pack acid foods canned by the boiling water bath method, whether by reasons of improper procedure or contamination after the fact, they can consume the natural acids present in the food. The effect of this is to raise the pH of the food in the container, perhaps to the point that it becomes possible for spores of *Clostridium botulinum*, better known as *botulism*, to become active and reproduce. For this reason, moldy wet pack foods should be safely discarded. This most deadly kind of food poisoning has an entry of its own in the bacterial spoilage section.

Molds in low acid foods canned by the pressure canning method are equally dangerous and should also be discarded in a safe manner.

Minimizing Molds

You can do a number of things to minimize unwanted mold growth in your kitchen, food storage areas, and refrigerators. If your kitchen is at all like mine, it is the refrigerator that is going to collect the most fungal growth. This can be dealt with by washing the inside every couple of months with a tablespoon of baking soda dissolved in a quart of warm water. Rinse clean and allow drying. The black mildew that grows on the rubber door gaskets and other places can be dealt with by wiping down with a solution of three tablespoons of household bleach in a quart of water. I generally use a soft bristle brush for this. A really bad case will not bleach back to a white color; at least it won't for me, but will instead turn pink or red after the bleach has carried out its disinfection mission.

The rest of the kitchen can be kept mold free by keeping the area clean, dry, and spraying occasionally with a product such as Lysol. Patches of mold can be eliminated with the bleach solution used on the refrigerator doors.

Try not to purchase more fresh food than you'll be able to eat in a short period of time. This will keep you from having to deal with the moldy remains that didn't get eaten. If food does go moldy, don't sniff it. This is a good way to give yourself respiratory difficulties if you are at all susceptible to mold allergies. Moldy food should be disposed in such a manner that your animals and children won't be able to get into it. Mycotoxins are every bit as bad for your animals as they are for you.

Obviously, you don't have to throw out everything that shows a spot of mold on it. Some foods can be safely dealt with and still partially saved if they show signs of fungal growth. Below is a set of guidelines from M. Susan Brewer, Ph.D., R.D., a specialist in food safety. Her articles and works are found in many state university extension services publications lists.

If the food shows even a tiny mold spot, follow these guidelines:

1. Hard or firm foods with tiny mold spots can be trimmed; cut away the area around the mold (at least an inch) and rewrap in clean wrap. Make sure that knife does not touch the mold.

Trim:
Hard Cheese (Cheddar, Swiss, etc.)
Bell Peppers, Carrots, Cabbage
Broccoli, Cauliflower, Brussels Sprouts

Garlic, Onions
Potatoes, Turnips
Zucchini
Apples, Pears

2. Soft foods such as cheese slices, cream cheese, sour cream and yogurt should be thrown away.

Toss:
Soft Cheeses, (Mozzarella, Brie, etc.)
Sour Cream, Yogurt, Cottage cheese
Bacon, Hot dogs, Sliced lunch meats

Meat pies
Opened canned ham
Most left-over food
Bread, Cakes, rolls, flour, pastry
Peanut butter
Juices, berries
Jam, Jellies, Syrups

Cucumbers, Tomatoes
Spinach, Lettuce, other leafy vegetables
Bananas, Peaches, Melons
Corn-on-the-cob
Stored nuts, whole grains, rice

Molds in Canned Goods
If good equipment and proper technique are used, it is unlikely you will ever have mold growth in your unopened canned goods. If you do have such, there was either a flaw in the procedure used, or something

affected the jar or can after the fact to break its seal. In any event, once the food has molded, it is past saving and should be discarded in such a way that children and animals will not be able to get into it. The most likely home canned products to show mold growth are jams and jellies sealed with paraffin wax.

There are a number of points in the canning process where this can occur:

1. In the time after the jar is taken out of its boiling water bath, but before it is filled.
2. In the time between when the jar is filled and covered with the melted wax.
3. When the wax cools, if it pulls away from the side of the jar, leaving an opening for the mold to get in.
4. If bubbles form in the paraffin, which break and leave holes.

For these reasons most canning authorities no longer recommend using this technique. If you must do so, the jars should be boiled for at least 10 minutes before the jelly is poured. The filled and wax capped jars should then be covered with some sort of protective lid. The book, *Putting Food By* has excellent instructions on this.

Molds in Grains and Legumes

It has long been known that eating moldy grain is bad for your health with the ugly consequences of eating ergot-infected rye being a well known example. It has only been about thirty years, though, that intensive study has been carried out on other species of grain fungi and their respective mycotoxins. Fortunately, for those of us in the U.S., the USDA and the various state departments of agriculture go to a great deal of trouble to detect grain and legumes infected with these toxic fungi. In some of the less developed countries, the citizenry are not so lucky. It is good to have something of an understanding of what one should do to prevent mold growth in ones stored grains and to have an idea of what to look for and ask about when purchasing grains and legumes.

The one fungal group that has caused the most commotion in recent history is the various *Aspergillus* species of molds. Under certain conditions with certain grains, legumes, and to a lesser extent, nuts, they can produce a mycotoxin called *aflatoxin*. This is a serious problem in some parts of the world, most especially in peanuts, occasionally in corn. I am not aware of any documented deaths in the United States from aflatoxicity, but other nations have not been so fortunate. What makes aflatoxin worrisome in this country is that it is also a potent carcinogen (cancer causing agent).

In addition to the *Aspergillus* molds, there is also a large family of molds known as *Fusarium* which can produce mycotoxins of their own, none of which do you want to be eating directly or feeding to your food animals where you will get the toxins back indirectly when the animal is slaughtered and eaten.

The Federal and state governments continuously monitor food and forage crops entering the marketplace. Those products found to be contaminated with mold or mycotoxins are not allowed to be sold for food. Once purchased however, the responsibility is yours to keep your food safe from mold growth. If you have already found mold growth in your whole grains, meals, flours or other grain products, they should be discarded. Most mycotoxins are not broken down or destroyed by cooking temperatures and there is no safe way to salvage grain that has molded.

Preventing Mold Growth in Stored Grains and Legumes

The easiest method to prevent mold growth in your stored grains and legumes is to keep them too dry for mold to grow. The *Aspergillus* and *Fusarium* molds require moisture contents of 18% and above to reproduce. This is subject to some variability, but in all grains and soybeans, they must have a moisture content of that level. If you are storing raw (not roasted) peanuts, in the shell or shelled, you want to get the moisture content to less than 8% as peanuts are particularly susceptible to mold growth. The recommended moisture content for all other grain and legume storage is no more than 10%.

Bacterial Spoilage
Like the fungi, bacteria are everywhere, in the water, soil, air, on you, your food, and your food storage containers. Fortunately, the vast majority of the bacteria we encounter are relatively harmless or even benign and only a few represent a danger to us and our stored foods.

Bacteria can be much more difficult to kill than molds and insects. Some are capable of continued growth at temperatures that would kill other spoilage organisms. When conditions are such that they are unable to grow, some bacteria can go dormant and form spores. These spores can be quite hardy, even to the point of surviving boiling water temperatures.

In order to grow, bacteria must have water, some species need as little as 20% moisture. For properly packaged dry grains, legumes, powdered milk and other low moisture foodstuffs bacterial spoilage will never be a problem as their moisture levels should be too scant to support growth.
WARNING: It is in wet pack canned goods (where the container has free liquid in it) and fresh foods we must be the most concerned about spoilage bacteria. It is here that a little bad luck and a moment's inattention to what you are doing could kill or seriously injure you or some other person who eats the foods you've put by. In both home-canned and commercially-canned goods, IF THE CAN IS BULGING, LEAKING, SMELLS BAD, OR SPEWS LIQUID WHEN YOU OPEN IT THEN THROW IT OUT! But, throw it out safely so that children and animals cannot get into it.

Botulism
Clostridium botulinum is one of the oldest life forms on this planet dating from a time before the Earth had an abundant oxygen atmosphere. Like the gangrene bacteria, it is an anaerobic organism meaning it lives and grows only in the absence of free oxygen. When conditions are not suitable for growth the bacteria can form durable seed like spores which are commonly found in the soil. This means that *C. botulinum* can be brought into your life on raw produce, tools, hands, or anything else that came into contact with dirt. To further complicate matters, botulinum spores are extremely heat-hardy. The bacteria itself can be killed by a short exposure to boiling water (212º F AT SEA LEVEL PRESSURE), but its spores can not. To kill them, the food product and container must be exposed to temperatures of 240º F (AGAIN AT SEA LEVEL PRESSURE) for a long enough period of time to allow all of the food in each container to come completely up to the proper temperature. Only a pressure-canner can reach the necessary temperature.

It's not the bacteria or its spores which are directly deadly, but the toxin the bacteria creates when it grows and reproduces. In its pure form, botulism toxin is so potent that a mere teaspoon would be enough to provide a fatal dose to hundreds of thousands of people. It is this lethality that is why every responsible book on home canning, food preservation and food storage hammers constantly on the need for care in technique and method and why spoilage must be taken seriously.

Like any other life form *Clostridium botulinum* must have suitable conditions for its growth to become a danger. One of the most important of these is water - the botulism bacterium needs moisture in the 35% range to grow making it a danger only in improperly processed high moisture foods. Another requirement is suitable pH, which is the measure of acidity or alkalinity in a substance and is measured on a scale of 1-14. Anything above 7 is considered alkaline and everything below 7 is considered acid. If the acidity of your wet pack food is BELOW pH 4.6 then *C. botulinum* is unable to grow. Keep in mind that in foods pH is not necessarily stable and could possibly change if other spoilers like mold are able to grow. If the product should change to a lesser acidity than pH 4.6 your previously botulinum proof food may start allowing the lethal spoiler to grow (see molds in canned goods). This is why it is vital to use proper technique, even for acid foods like tomatoes. It has been found that when this pH shift occurs, allowing *C. botulinum* to become active producing its lethal toxin the bacterium also produces minute amounts of acid which can lower the pH of the poisoned food back into what should have been the safe zone had the pH not jumped up and allowed the bacteria to grow. Again and again — use good technique and pay attention to what you are doing.

Unlike fungal mycotoxins Botulinum toxin can be destroyed by boiling food briskly in an open vessel for fifteen minutes. Because of this, if your canned food shows any safety problems you should follow this procedure. If the food shows even the slightest mold growth keep in mind that mycotoxins are not for the most part broken down by heat and dispose of the food safely.

I won't go into the how's of home canning here. For that I strongly recommend that you read the *Ball Blue Book* or most especially the book *Putting Food By* for in depth information on this subject.

Enzymatic Action in Food Spoilage

Every living organism uses enzymes of many sorts in its bodily functions as part of its normal life cycle. Enzymes are used in creating life. After death, enzymes play a role in the decomposition of once living tissue. The enzymes in a tomato help it to ripen and enzymes produced by the tomato and whatever fungal and bacterial spoilers are on it cause it to decay.

Fortunately, slowing down or stopping the action of a food's enzymes is much easier than slowing or stopping some of the bacterial spoilers mentioned above. Enzymes are most active in a temperature range between 85-120º F and begin to be destroyed when the temperature goes above 140º F. Cold also slows down the action of enzymes, which is why fresh tomatoes last longer in the refrigerator than they do on the kitchen table. Most enzymatic action also requires moisture to occur. In foods stored at 10% moisture or less, there is not enough moisture for most enzymes to be active.

Recommended Food Storage Times

At 70° F.

FOOD		KEEP THE PRODUCT:	STORAGE TIPS
Baking powder		until can date	Sealed & bone dry
Baking soda		2 years	Sealed & dry
Biscuit, brownie, muffin mix		9 months	Sealed, cool, dry, weevil proofed
Bouillon,	cubes or granules	2 years	Sealed, cool and dry
Cake mixes,	regular	9 months	Sealed, cool, dry, weevil proofed
	angel food	1 year	Sealed, cool, dry, weevil proofed
Canned food:	Metal can, Non-Acidic	2 years	Cool & Dry
	Metal Can, Acidic	12-18months	Cool & Dry
	Glass jars	2-3 years	Dark, Cool & Dry
Chocolate		18 months	Cool and dark
Chocolate syrup		2 years	Cool & tightly sealed
Cocoa,	powder or mixes	8 months	Sealed and cool
Coffee	creamers, powdered	9 months	Sealed and cool
Cornmeal		1 year	Keep dry & weevil proofed Cornstarch
		18 months	Keep dry
Crackers		3 months	Keep dry & weevil proofed
Flour,	refined white	8-12 months	Dry & weevil proofed,
	whole wheat	4-6 weeks	Refrig/freeze for longer shelf life
Frostings,	canned	3 months	Cool
	Mix	8 months	Dry and cool
Fruits,	dried	6-12 months	Cool, sealed, weevil proofed
Gelatin,	all types	18 months	Protect from moisture
Grains,	whole	2 years	Dry and weevil proofed
Hominy, hominy grits, masa harina		1 year	Dry and weevil proofed
Honey		2 years	Cool, tightly sealed, dark
Jellies, jams, preserves		2 years	Dark, cool, tightly sealed.
Molasses & syrups		2 years	Tightly sealed
Mayonnaise		6 months	Cool & dark
Milk,	condensed or evaporated	1 year	Turn over every 2 months
	non-fat dry	6 months	Bone dry and cool
Nuts,	vacuum canned	1 year	Cool and Dark
	other packaging	3 months	Cool and dark – Better refrigerated
	in shell	4 months	Cool, dry & dark, Better refrigerated or frozen
Pancake mix		6-9 months	Dry and weevil proofed
Pastas (macaroni, noodles, etc)		2 years	Dry and weevil proofed
Peanut butter		6-9 months	Sealed, cool, dark
Peas and beans, dry (not soybeans)		2 years	Dry and weevil proofed
Potatoes, instant		6-12 months	Dry and weevil proofed
Pudding mixes		1 year	Cool and very dry
Rice,	white	2+ years	Dry and weevil proofed
	brown	3-6 months	Dry & weevil proofed, Better refrigerated or frozen
	flavored or herb	6 months	Sealed, dry and weevil roofed
Salad dressings		10-12 months	Sealed, dark, cool. Better refrigerated
Salad oils		6 months	Sealed, dark, cool. Better refrigerated
Sauce and gravy mixes		6-12 months	Cool and dry
Shortening, solid		1 year	Cool, dark, tightly sealed.
Soup mixes		1 year	Cool, dry, and weevil proofed
Sugar,	brown	2 years	Tightly sealed, Dry.
	confectioners	18 months	Tightly sealed, Dry.
	granulated	2+years	Dry
Syrups (corn syrup based)		8-12 months	Sealed and cool
Vegetables, dried		1 year	Cool, dark, dry, weevil proofed Vinegar
		2+ years	Sealed

Space Cramp???

(Err... cramped space... where to hide all that Food Storage!)
By Kim Hicken

Storage space got you down? Do you feel as though you are tripping over your food storage? Never fear - there is a light at the end of the storage tunnel! Storage space seems to be a never ending problem these days. Many new homes are built with terrific vaulted ceilings, great views, and NO storage space!!! Older homes can also have a shortage of space. With a little creative thinking, and some planning, people can have space to store the important things in your life.

The first thing that must be done, (and this is the very hardest part) is that you must de-junk your home. People are all pack-rats to a certain extent. At a speech regarding the de-junking of our homes, the presenter asked how many people present had a watch at home that did not work. Every single person in the room held up his hand. Do YOU have one of these treasures in your home? (Be honest, now!) We all have things in our homes that were once priceless treasures, but have now become a nuisance. Get rid of them! There are probably a million suggestions of ways to de-junk. Choose one that fits with your life style. A book that can help you with this is *Clutter's Last Stand: It's time to de-Junk Your Life* by Don Aslett. Check your local library for this, and other books on this subject.

Once you have gotten rid of some of the nonessentials, you must become creative.
Stand in each room of your home and take a good look around.

- Is there storage space that is currently not being utilized?
- Is there space that is being used inefficiently?
- Are there shelves that could be built taller?
- Are there shelves that are deep that are only filled partially?
- Making efficient use of the storage space you already have may net you enough new space to store quite a bit.
- There are a lot of nice, new plastic storage containers on the market that may help you store things more easily, and stack them a bit deeper. Sturdy cardboard boxes can also help. Grocery stores will generally give you fruit boxes if you ask.

One Woman who is raising four children in a very small turn-of-the-century stone house has come up with some very creative storage space. She built her own couches using a basic toy-box type design. She purchased thick foam rubber, and made cushions to go on top of the boxes. Then she made coordinating pillows to add more comfort to the couch. The hollow bottoms have given her lots of extra space.
When she moved into the home, the cupboards had space above them. She modified them so that now her kitchen cupboards go all the way to the ceiling. No space has been wasted. She completely utilizes the space under her stairs. An upstairs bedroom built into the attic space still has some space (under the eves) that she utilizes for additional storage.

Since she does not care for crawling around in dark places, she built small doors into the wall approximately every four feet. When she needs to put something in the space or take something out, she simply reaches in the closest door.

She does not like to move things to vacuum, so she puts many shelves on the walls, and up off the floor. By building shelves in this manner, she has moved miscellaneous family items out of prime food-storage space, allowing her to store more food. In many cases, our best food-storage space is full of things that could be stored elsewhere.

Another Woman who has six children in a modular home has learned to be creative with her space as well. She stood in her rooms and looked around, and before long, she discovered that there was a hollow space between two walls. This was not a huge space, but it was enough to provide her some more storage space. She

took the paneling off that portion of the wall, and put a cupboard door on. Cupboard doors are not expensive, nor are they difficult to install. Now she has a storage closet where none existed originally.

The floor in a small bedroom has a trap door in it that allows her to actually go under her home. There she has found a lot of great space to store things that need to be kept cool. Even in the heat of summer, this space is cool. She uses it to store potatoes, and foods that are in air-tight containers. She has buckets of honey, buckets of wheat, and buckets of beans under this room.

One good trick is to use garbage cans as bedside tables. This is done by purchasing regular garbage cans at a discount store. New ones are recommended because they have no odd smells or dirt attached! One sheet of plywood is then used to cut two circles four to five inches bigger in diameter than the top of the can. The lids to the garbage cans are not used. Let the kids use them as shields when they play. Place the plywood circles over the top of the garbage cans, and then cover your new bedside tables with nice round covers (called "table rounds") that coordinate with your bedspread. Nobody will know that your lovely bedside tables are actually garbage cans! This provides wonderful food storage space for some of the items that need to be stored in bulk, such as beans or wheat.

Don't forget the space under your beds! There are lots of food items that can be stored in the small spaces under your beds. Salt, peanut butter, cans of potato flakes, canned vegetables, and cans of shortening can all be stored easily under the beds. They are also easily accessible.

Take a look at your closets. Is there room on the floor of the closet? There are many commercial closet storage systems on the market that can help you more efficiently use your space. But you can also build your own for less expense. Five gallon buckets can be stored on the floor of the closet, and a board put across the top of them to make a handy shelf for shoes and boots. Does the space in the top of the closet go all the way to the ceiling? Five gallon buckets could be stored up there as well, but it is not recommended to store heavy things in them. This may be a good place to store tissue, paper towels, or toilet paper. If you buy your laundry detergent in big buckets, these make terrific storage containers for such items.

One Woman who struggled with a tiny dining area solved two problems with one solution. She built her own benches with hollow bottoms (the toy box design again). She put colorful cushions on top, and then used her own dining room table. Benches generally seat more people than traditional chairs. Now her entire family can fit in her small dining area, and she has extra storage space as well.

Don't let storage problems scare you! You are smarter than the things you own! A little creativity and elbow grease can go a long way toward providing more storage space in your home. Now roll up those sleeves and take a good look at YOUR home!

Here are a few more ideas sent by Food Storage Editor, Andrea Chapman: "I have some ideas for storing in small places. One idea is a little radical, but my husband and I did it and it worked well. We took **apart our bed frame** and used buckets; about 12-16 to hold up our bed. It was a little higher than before, but it looked fine.

I have a friend who used the **#10 cans in boxes** that fit 6. She stacked those and used that under the bed. Also, you can stack those three high and put a table cloth over it for a nice little table in the Living Room or Family room. I have also put food storage in the boys' room, in their closet on the floor. Not many little kids use all their closet space.

Emergency Heating, Cooking & Lighting

Heating

Coal stores well if kept in a dark place and away from moving air. Air speeds deterioration and breakdown, causing it to burn more rapidly. Coal may be stored in a plastic-lined pit or in sheds, bags, boxes, or barrels and should be kept away from circulating air, light, and moisture. Cover it to lend protection from weather and sun.

Wood Hardwoods such as apple, cherry, and other fruit woods are slow burning and sustain coals. Hardwoods are more difficult to burn than softer woods, thus requiring a supply of kindling. Soft woods such as pine and cedar are light in weight and burn very rapidly, leaving ash and few coals for cooking. If you have a fireplace or a wood/coal burning stove, you will want to store several cords of firewood. Firewood is usually sold by the cord which is a neat pile that totals 128 cubic feet. This pile is four feet wide, four feet high, and eight feet long. Some dealers sell wood by the ton. As a general rule of thumb, a standard cord of air dried dense hardwood weighs about two tons and provides as much heat as one ton of coal. Be suspicious of any alleged cord delivered in a ½ or ¾ ton pickup truck.

For best results, wood should be seasoned (dried) properly, usually at least a year. A plastic tarp, wood planks, or other plastic or metal sheeting over the woodpile is useful in keeping the wood dry. Other types of fuels are more practical to store and use than wood or coal.

Newspaper logs make a good and inexpensive source of fuel. You may prepare the logs in the following manner:

- Use about eight pages of newspaper and open flat.
- Spread the stack, alternating the cut sides and folded sides.
- Place a 1" wood dowel or metal rod across one end and roll the paper around the rod very tightly.
- Roll it until there are 6-8 inches left to roll, and then slip another 8 pages underneath the roll. Continue this procedure until you have a roll 4-6 inches in diameter.
- With a fine wire, tie the roll on both ends. Withdraw the rod.

Your newspaper log is ready to use. Four of these logs will burn about 1 hour.

Propane is another excellent fuel for indoor use. Like kerosene, it produces carbon dioxide as it burns and is therefore not poisonous. It does consume oxygen so be sure to crack a window when burning propane.

Propane stores indefinitely, having no known shelf life. Propane stoves and small portable heaters are very economical, they are simple to use, and come, the closest to approximating the type of convenience most of us are accustomed to using on a daily basis.

The storage of propane is governed by strict local laws. You may want to check the laws in your area before storing a large amount of propane.

The primary hazard in using propane is that it is heavier than air and if a leak occurs it may "pool" which can create an explosive atmosphere. Furthermore, basement natural gas heating units CANNOT be legally converted for propane use. Again, the vapors are heavier than air and form "pockets." Ignition sources such as water heaters and electrical sources can cause an explosion.

Kerosene is the cheapest of all the storage fuels and is also very forgiving if you make a mistake. Kerosene is not as explosive as gasoline and Coleman fuel. Kerosene stores well for long periods of time and by introducing some fuel additives it can be made to store even longer. However, do not store it in metal containers for extended time periods unless they are porcelain lined because the moisture in the kerosene will rust through the container causing the kerosene to leak out. Most hardware stores and home improvement centers sell kerosene in five gallon plastic containers which store for many years. A 55 gallon drum stores in the back yard, or ten 5 gallon plastic containers will provide fuel enough to last an entire winter if used sparingly.

Caution: To burn kerosene you will need a kerosene heater. There are many models and sizes to choose from but remember that you are not trying to heat your entire home. The larger the heater the more fuel you will have to store. Most families should be able to get by on a heater that produces about 9,600 BTUs of heat, though kerosene heaters are made that will produce up to 25,000 to 30,000 BTUs. If you have the storage space to store the fuel required by these larger heaters they are excellent investments, but for most families the smaller heaters are more than adequate. When selecting a kerosene heater be sure to get one that can double as a cooking surface and source of light. Then when you are forced to use it be sure to plan your meals so that they can be cooked when you are using the heater for heat rather than wasting fuel used for cooking only.

When kerosene burns it requires very little oxygen, compared to charcoal. You must crack a window about ¼ inch to allow enough oxygen to enter the room to prevent asphyxiation. During combustion, kerosene is not poisonous and is safe to use indoors. To prevent possible fires you should always fill it outside. The momentary incomplete combustion during lighting and extinguishing of kerosene heaters can cause some unpleasant odors. To prevent these odors from lingering in your home always light and extinguish the heater out of doors. During normal operation a kerosene heater is practically odorless.

Cooking

Charcoal Never use a charcoal burning device indoors. When charcoal burns it is a voracious consumer of oxygen and will quickly deplete the oxygen supply in your little "home within a home." Furthermore, as it burns it produces vast amounts of carbon monoxide which is a deadly poison. If you make the mistake of trying to heat your home by burning charcoal it could prove fatal to your entire family. Never burn charcoal indoors.

To conserve your cooking fuel, always do your emergency cooking in the most efficient manner possible. Don't boil more water than you need, extinguish the fire as soon as you finish, plan your meals ahead of time to consolidate as much cooking as possible. During the winter, cook on top of your heating unit while heating your home, and cook in a pressure cooker or other fuel efficient container as much as possible. Keep enough fuel to provide outdoor cooking for at least 7-10 days.

It is even possible to cook without using fuel at all. For example, to cook dry beans you can place them inside a pressure cooker with the proper amount of water and other ingredients needed and place it on your heat source until it comes up to pressure. Then turn off the heat, remove the pressure cooker and place inside a large box filled with newspapers, blankets, or other insulating materials. Leave it for two and a half hours and then open it, your meal will be done, having cooked for two and a half hours with no heat. If you don't have a large box in which to place the pressure cooker, simply wrap it in several blankets and place it in the corner.

Store matches in waterproof airtight tin with each piece of equipment that must be lit with a flame.

Sterno fuel, a jellied petroleum product, is an excellent source of fuel for inclusion in your back pack as part of your 72 hour kit. Sterno is very light weight and easily ignited with a match or a spark from flint and steel but is not explosive. It is also safe for use indoors.

A Sterno stove can be purchased at any sporting goods store and will retail between $3 and $8, depending upon the model you choose. They fold up into a very small, compact unit ideal for carrying in a pack. The fuel is readily available at all sporting goods stores and many drug stores. One can of Sterno fuel about the diameter of a can of tuna fish and twice as high, will allow you to cook six meals if used frugally.

Sterno can evaporate very easily, even when the lid is securely fastened. If you use Sterno in your 72 hour kit you should check it every six to eight months to insure that it has not evaporated beyond the point of usage. Because of this problem it is not a good fuel for long-term storage.

Coleman fuel (white gas), when used with a Coleman stove is another excellent and convenient fuel for cooking. It is not as portable or as lightweight as Sterno, but produces a much greater BTU value. Like Sterno, Coleman fuel has a tendency to evaporate even when the container is tightly sealed so it is not a good fuel for long-term storage. Unlike Sterno, however, it is highly volatile; it will explode under the right conditions and should therefore never be stored in the home. Because of its highly flammable nature great care should always be exercised when lighting stoves and lanterns that use Coleman fuel.

Charcoal is the least expensive fuel per BTU that the average family can store. Remember that it must always be used out of doors because of the vast amounts of poisonous carbon monoxide it produces. Charcoal will store for an extended period of time if it is stored in air tight containers. It readily absorbs moisture from the surrounding air so do not store it in the paper bags it comes in for more than a few months or it may be difficult to light. Transfer it to airtight metal or plastic containers and it will keep almost forever.

Fifty or sixty dollars worth of charcoal will provide all the cooking fuel a family will need for an entire year if used sparingly. You will also want to store a small amount of charcoal lighter fluid (or kerosene). Newspapers will also provide an excellent ignition source for charcoal when used in a funnel type of lighting device.

To light charcoal using newspapers use two or three sheets, crumpled up, and a #10 tin can. Cut both ends out of the can. Punch holes every two inches around the lower edge of the can with a punch-type can opener (for opening juice cans). Set the can down so the punched holes are on the bottom. Place the crumpled newspaper in the bottom of the can and place the charcoal briquettes on top of the newspaper. Lift the can slightly and light the newspaper. Prop a small rock under the bottom edge of the can to create a good draft. The briquettes will be ready to use in about 20-30 minutes. When the coals are ready remove the chimney and place them in your cooker. Never place burning charcoal directly on concrete or cement because the heat will crack it. A wheelbarrow or old metal garbage can lid makes an excellent container for this type of fire.

One of the nice things about charcoal is that you can regulate the heat you will receive from them. Each briquette will produce about 35° of heat. If you are baking bread, for example, and need 350° of heat for your oven, simply use ten briquettes.

To conserve heat and thereby get the maximum heat value from your charcoal you must learn to funnel the heat where you want it rather than letting it dissipate into the air around you. One excellent way to do this is to cook inside a cardboard oven. Take a cardboard box, about the size of an orange crate, and cover it with aluminum foil inside and out. Be sure that the shiny side is visible so that maximum reflectivity is achieved. Turn the box on its side so that the opening is no longer on the top but is on the side. Place some small bricks or other noncombustible material inside upon which you can rest a cookie sheet about two or three inches above the bottom of the box. Place ten burning charcoal briquettes between the bricks (if you need 350°), place the support for your cooking vessels, and then place your bread pans or whatever else you are using on top of the cookie sheet. Prop a foil-covered cardboard lid over the open side, leaving a large crack for air to get in (charcoal needs a lot of air to burn) and bake your bread, cake, cookies, etc. just like you would in your regular oven.

Burn charcoal only in a well-ventilated area.

Wood and Coal Many wood and coal burning stoves are made with a cooking surface. These are excellent to use indoors during the winter because you may already be using it to heat the home. In the summer, however, they are unbearably hot and are simply not practical cooking appliances for indoor use. If you choose to build a campfire on the ground outside, be sure to use caution and follow all the rules for safety. Little children, and even many adults, are not aware of the tremendous dangers that open fires may pose.

Kerosene Many kerosene heaters will also double as a cooking unit. In fact, it is probably a good idea to not purchase a kerosene heater that cannot be used to cook on as well. Follow the same precautions for cooking over kerosene as was discussed under the section on heating your home with kerosene.

Propane Many families have propane camp stoves. These are the most convenient and easy to use of all emergency cooking appliances available. They may be used indoors or out. As with other emergency fuel sources, cook with a pressure cooker whenever possible to conserve fuel.

Apple Box Oven
An Apple Box Oven is a great way to bake when an emergency situation exists. All you need is your oven, charcoal and matches and you will be able to bake anything that you could bake in a conventional oven. It is also economical as you are not using electricity and it actually uses almost half the charcoal as Dutch oven baking. You can bake bread, pies, casseroles, cookies....anything that you normally would bake in a conventional home oven; you can bake in an Apple Box Oven.

Constructing the Apple Box Oven:

You will need:

- 1 sturdy cardboard apple box (20 inch x 13 inch and 12½ inch high). Try to find one that does not have handle holes on the sides. If it does have handle holes, you will need extra cardboard to fill any handle holes.
- (1) 80-inch length heavy duty aluminum foil
- (1) 90-inch length heavy duty aluminum foil
- Masking Tape & Metal Repair Tape (this tape was found in the duct- work department of our local hardware store. It looks like duct tape but is shiny - like metal.)
- Optional for a window: (1) plastic oven bag & Metal Tape

If there are any holes, in your apple box cut extra cardboard to fill holes and cover patch with metal tape on both sides.

If an oven window is desired, cut a horizontal oven window (approx. 9x4 inches) in one of the long sides, centered and 2½ inches from the closed bottom of the box. Make sure that you measure and cut the hole in the correct spot so that it will view right over the rack level.

To Cover the Box:
You will need to completely cover the box inside and out with foil. Secure the foil to the cardboard box with masking tape curls. (Tape Curls are small lengths of masking tape, curled around to attach ends so that the sticky side of the tape is on the outside of curl. These are used to hold the foil into place until you can tape outsides seams and corners with metal tape.) Any exposed cardboard or tape will burn so overlap the foil.

1. *The 80-inch length of foil will cover the box inside and outside ends and the outside only of the bottom.* Lay this foil shiny-side down. Position the box lengthwise and bottom down, centered on the foil strip. Fold one length of the foil up the end and inside of the box. This end of the foil should fold onto the inside bottom about 4 inches. Making sure the foil on the end just covered is snug, repeat the same procedure for the other end of the box. Fold the excess foil on the outside edges of the box onto the box sides and secure foil with hidden masking tape curls-both inside and outside the box.

2. *The 90-inch length of foil will cover the inner and box outer sides and bottom.*
   Lay foil, shiny-side down. Position and center the box across the foil, so the foil will cover the bare sides. Begin on the side of the box without a window. Fold the very end of the foil strip over 1 in. Fold this end over the side of the box and position it into the inside crease where the bottom and side meet. Making sure the foil on the side just covered is snug, pull the foil around the bottom and up the side (covering the window), down the inside (covering the window) and across the bottom. Tuck the extra foil underneath the first edge with the 1-inch fold so it goes up the side. With hidden masking tape curls, secure the foil inside and outside the box. Using Metal Repair Tape, tape-up all seams. Do not leave any edges un-taped.

3. *If you are making a window:*
   Using scissors, cut a horizontal slit in the middle of the window hole, stopping 2 inches from each side. Fold the outside flaps through the window to the inside of the box. Cut a plastic roasting oven bag ½ inch larger than the window in a rectangle shape. Using a double layer, secure the roasting bag edges with metal tape.

To Bake with Your Apple Box Oven:
You will need:

- 4 empty soda pop cans, filled part way with rocks & opening covered with metal tape. (The rocks make it so the cans will not tip over)
- 10 x 14 inch cookie cooling rack (We found ours at Walmart)
- Ground Heavy Duty Foil (Make it longer than the apple box)
- Charcoal briquettes
- Long-handled tongs
- Matches
- 1-inch rock

To Bake:

1. Place ground foil, shiny side up, on level ground.
2. Space pop cans on foil so as to support the cookie baking rack.
3. Position rack so that only the very corners are resting on the pop cans. Check to make sure the cans are not spaced too far apart to prevent the apple box from fitting over them.
4. You will regulate the temperature of your oven by the number of charcoals you put in it. One charcoal = approx. 35° F. (Example...for 350° use 10 charcoals.)
5. Using tongs, place hot charcoals on foil, spreading them out evenly between the cans and across the middle. Place baking rack on top of cans.
6. To pre-heat oven, place the apple box over coals and empty rack, resting one corner on a 1-inch rock. (This allows enough air in the box for the charcoal to stay lit.) Let stand for 5 min. Charcoal will become whiter as heat spreads.
7. Carefully lift apple box off coals taking care not to tilt, and place it beside the ground foil. (This holds trapped heat in the box.)
8. Quickly place food on the rack that is on the pop cans and replace box over coals, resting one corner on the rock. (Make sure that the pan you are using fits on the center of the rack since the heat will not bake any food that is directly over the pop cans.)
9. The charcoal will burn for about 35-40 min. When longer cooking times are required, you can add more hot charcoals by slightly lifting the box and slipping them in with long tongs. We found that if a recipe calls for 45 min baking time and it is warm outside, no additional charcoals would be needed.

REMEMBER:
One charcoal = approx. 35° F.
(Example...for 350° use 10 charcoals.)

GOOD ADVICE:
You will not want to use lighter fluid to start your charcoal since it may affect the taste of your food. We have found that if you use a charcoal starter, (we found it at a Cal-Ranch store...farming/camping/hunting supplies) your charcoals light faster and they are ready to use within 5 minutes time. They are ready to use when there are white spots on them the size of a dime. As the cooking time goes on, they will become whiter.

Lighting

Most of the alternatives require a fire or flame, so use caution. More home fires are caused by improper usage of fires used for light than for any other purpose. Especially use extra caution with children and flame. Teach them the proper safety procedures to follow under emergency conditions. Allow them to practice these skills under proper adult supervision now, rather than waiting until an emergency strikes.

Cyalume sticks are the safest form of indoor lighting available, but very few people even know what they are. Cyalume sticks can be purchased at most sporting goods stores for about $2 per stick. They are a plastic stick about four inches in length and a half inch in diameter. To activate them, simply bend them until the glass tube inside them breaks, then shake to mix the chemicals inside and it will glow a bright green light for up to eight hours. Cyalume is the only form of light that is safe to turn on inside a home after an earthquake. One of the great dangers after a serious earthquake is caused by ruptured natural gas lines. If you flip on a light switch or even turn on a flashlight you run the risk of causing an explosion. Cyalume will not ignite natural gas.

Flashlights are excellent for most types of emergencies except in situations where ruptured natural gas lines may be present. Never turn a flashlight on or off if there is any possibility of ruptured gas lines. Go outside first, turn it on or off, then enter the building.

The three main problems with relying upon flashlights is that they give light to very small areas, Alkaline batteries store the best if stored in a cool location and in an airtight container. These batteries should be expected to store for three to five years. Lithium batteries will store for about twice as long as alkaline batteries (about ten years). Store at least two or three extra bulbs in a place where they will not be crushed or broken.

Candles Every family should have a large supply of candles, the larger the better. Fifty-hour candles are available in both solid and liquid form. White or light colored candles burn brighter than dark candles. Tallow candles burn brighter, longer, and are fairly smoke free when compared to wax candles. Their lighting ability can be increased by placing an aluminum foil reflector behind them or by placing them in front of a mirror. However, candles are extremely dangerous indoors because of the high fire danger--especially around children. For this reason, be sure to store several candle lanterns or broad-based candle holders. Be sure to store a supply of wooden matches.

Kerosene lamps are excellent sources of light and will burn for approximately 45 hours on a quart of fuel. They burn bright and are inexpensive to operate. The main problem with using them is failure to properly trim the wicks and using the wrong size chimney. Wicks should be trimmed in an arch, a "V," an "A" or straight across the top. Failure to properly trim and maintain wicks will result in smoke and poor light.

Propane and Coleman lanterns Camp lanterns burning Coleman fuel or propane make excellent sources of light. Caution should be used in filling and lighting Coleman lanterns because the fuel is highly volatile and a flash type fire is easy to set off. Always fill them outside. Propane, on the other hand, is much safer. It is not as explosive and does not burn quite as hot. A double mantle lantern gives off as much light as two 100-watt light bulbs. Either propane or Coleman fuel type lanterns are very reliable and should be an integral part of your preparedness program. Be sure to store plenty of extra mantles and matches.

Store lots of wooden matches (1,000-2,000 is not too many). Also store butane lighters to light candles, lanterns and fireplaces.

Above all, your home and family must be protected from the ravages of fire by your actions. Study the instructions for any appliance used for heating, cooking, or lighting and understand their features as well as their limitations. Don't go to sleep with any invented burning device in your home. Your family might not wake up.

Whatever you store, store it safely and legally. In an emergency, survival may cause you to make decisions that are questionable with regard to safety. Become educated to the inherent hazards of your choices and make a decision based on as much verifiable information as possible. You and your family's lives will depend on it.

Fuel	Amount	Burning Time
White gas Lanterns		
Two mantle	2 pints	10-12 hours
Single mantle	2 pints	16-18 hours
Kerosene Lanterns	1 quart	45 hours
Candles	¾ X 4”	2 1/3 hours
	7/8 X 4”	5 hours

Emergency Sanitation

It is especially important to be sanitary in the storing, handling, and eating of food to avoid digestive upsets or other more serious illnesses. Be sure to:

- Keep all food in covered containers.
- Keep cooking and eating utensils clean. Diarrhea may result from dish soap that is not thoroughly rinsed from dishes.
- Keep all garbage in a closed container or dispose of it outside the home when it is safe to go out. If possible, bury it. Avoid letting garbage or trash accumulate inside the shelter, both for fire and sanitation reasons.
- Wash hands and utensils frequently.
- Prepare only as much food as will be eaten at each meal.
- Paper cups and plates, paper towels and napkins are helpful if the water supply is cut off.
- Refrigerators and home freezer units should be kept closed as much as possible once the services they depend on are cut off. The food they contain will keep longer if you plan your meals well in advance so that you won't have to open the doors any more than necessary. If the gas or electric service is not restored within 12 hours, eat or cook the most perishable items in your refrigerator before they spoil. If foods show signs of decomposition, discard them before they contaminate other foods that keep better.

Laundry and Cleaning Supplies

During times of emergency it is critical that sanitation be strictly observed in the cleaning of clothing, bedding materials, and all kitchen and food preparation utensils.

Suggested laundry and cleaning storage items are:

- deodorizer tablets and air fresheners
- Lysol-type disinfectant
- toothpaste and toothbrushes
- laundry detergent
- liquid chlorine bleach
- dish detergent
- bar soap
- shampoo and conditioner
- hair spray
- deodorant
- feminine supplies
- shaving supplies

Disposal of Garbage and Rubbish

Garbage may sour or decompose, rubbish (trash) will not, but offers disposal problems in an emergency. The following suggestions will make it easier for you to take care of the refuse problem.

Garbage should be drained before being placed in storage containers. If liquids are strained away, garbage may be stored for a longer period of time without developing an unpleasant odor. After straining, wrap the garbage in several thicknesses of old newspapers before putting it into your container. This will absorb any remaining moisture. A tight-fitting lid is important to keep out flies and other insects.

Final disposal of all stored garbage and refuse can be accomplished in the following manner:

1. All stored garbage should be buried if collection service is not restored and if unpaved yard areas are available--keep a shovel handy for this purpose.
2. Dig a hole deep enough to cover it with at least 18-24 inches of dirt, which will prevent insect breeding and discourage animals from digging it up.

Other rubbish may be burned in open yard areas (if permission is granted by authorities under existing conditions) or left at dumps established by local authorities. Cans should be flattened to reduce their bulk.

Do not deposit ashes or rubbish in streets or alley ways without permission. Such material may interfere with the movement and operation of fire-fighting and other emergency equipment.

Sewage Disposal
An emergency chemical toilet consisting of a water-tight container with a snug-fitting cover should be an integral part of your preparedness program. It could be a garbage container, a pail, or a 5-gallon garbage can (also with a tight-fitting lid). Another should be available to empty the contents into for later disposal. If possible, both containers should be lined with plastic bags or garbage can liners. NEVER deposit human waste or garbage on the open ground. If you have no other alternative for disposal, it is safe to bury waste in trenches 24-30 inches in depth.

Every time someone uses the emergency toilet, he should pour or sprinkle into it a small amount of regular household disinfectant, such as Pinesol, chlorine bleach, baking soda, alcohol, laundry detergent, or insecticide to keep down odors and germs. After each use, the lid should be replaced.

Emergency Chemical Toilet
The following items should be stored together inside a 5-gallon plastic bucket. The bucket will serve as the toilet during an emergency.

To use this toilet simply remove the contents from the bucket, insert a large plastic garbage can liner into the bucket and fold the edges over the rim of the bucket. Mix one cup of liquid chlorine bleach to one-half gallon of water (one to ten ratio--do not use dry or powdered bleach as it is caustic and not safe for this type of use) and pour this solution into the bucket. This will kill germs and insure adequate coverage.

Emergency Chemical Toilet
- 5-gallon plastic bucket (with tight fitting lid)
- 2 large boxes of garbage can liners (30 gallon size)
- 1 gallon liquid chlorine bleach or other chemical
- Pinesol
- 6-8 rolls toilet paper
- feminine sanitary supplies
- 2 boxes baking soda
- 2 boxes trash can liners (8-10 gallon size)
- paper towels

After each usage replace the lid securely upon the bucket to keep insects out and to keep the smell contained. When the bucket is one-third to one-half full, tie the garbage bag liner shut and dispose of it appropriately (i.e., burying it, placing it inside a large covered metal garbage can for later disposal, or placing it in an approved disposal location). Put another liner inside the bucket and continue as above.

Persons in city apartments, office buildings, or homes without yards should keep a supply of waterproof containers on hand for emergency waste disposal.

If you have a baby in your home, it is best to keep an ample supply of disposable diapers on hand for emergency use. If these are not available, emergency diaper needs can be met by lining rubber pants with cleansing tissue, toilet paper, scraps of cloth, or other absorbent materials.

Be sure to wash your own hands regularly when working with infants (especially after each diaper change). Typhoid fever, amoebic dysentery, diarrhea, infectious hepatitis, salmonella and giardiasis are diseases that

spread rapidly in times of emergency and threaten all, yet are all diseases that can easily be controlled by simply following the rules of good sanitation.

Chemical and Radiological Accidents

The likelihood of a community suffering a major disaster caused by a chemical accident has greatly increased because of the increase in everyday use of chemicals by all segments of our population as well as the movement of chemicals by all types of transportation. These guidelines are designed primarily for communities in Giles County which do not presently contain chemical plants but might be affected by a transportation accident or by an accident at a chemical plant in a neighboring community.

Citizen Response
Cooperate with Authorities

- Prompt reporting of a chemical accident is every citizen's responsibility. Local authorities, and particularly emergency services personnel (police, fire, medical, and public works) need factual information in order to make base decisions on how to respond to the accident
- A citizen should not spread rumors. If you are a witness but not a casualty, you should tell the authorities exactly what you saw. If not a witness, you should keep posted via radio or television BUT DO NOT RUSH to the scene, since this causes serious obstructions to those professionals who are attempting to save lives and property. The curious bystanders at the scene are needlessly exposing themselves to injury, particularly if dangerous chemical reactions are involved.

Emergency Treatment of Casualties
You may find it necessary to administer emergency first aid to a victim of a chemical accident or to yourself if you have been injured. The treatment described in this section is limited to emergency procedures which anyone can administer.

The first aid measures suggested rely heavily on the use of running water since it is usually readily available and will remove chemicals by solution, dilution, and mechanical action. These measures cover four of the principal types of chemical threats to people:

- inhalation
- skin exposure
- swallowing
- eye exposure

Inhalation

1. Remove the person to an uncontaminated atmosphere. If the person has been overcome and is unconscious, do not attempt a rescue without the protection of proper respiratory equipment, preferably some form of self-contained breathing apparatus. Remember, a gas mask does not protect against atmospheric oxygen deficiency, nor is it effective in high concentrations (two percent by volume is the usual limit) of chemical vapors. Also, even though a self-contained air supply mask is worn, injury can occur through exposed skin surfaces if the air contaminant is an irritant or can be absorbed through the skin.
2. Have the person lie down and keep him or her warm. If breathing is difficult, a sitting position may be more comfortable. If the person is unconscious, see that the tongue does not fall back and obstruct breathing. If vomiting starts, turn the person on his/her side or face downward to prevent inhalation of vomited material.
3. If breathing has stopped, send for help and begin artificial respiration. Continue until breathing is restored or a physician arrives to take charge. Mouth-to-mouth breathing is the most effective method of artificial respiration. The back pressure-arm lift method is also very efficient.
4. If breathing becomes difficult or the color of the victim becomes blue-gray, check for obstructed airway. If the airway is clear, oxygen may be given by face mask, but only by someone familiar with the use of the equipment and authorized to do so.

5. Call a physician as soon as possible or send someone to do this. Make sure the physician knows where the victim is and what the need is.
6. Never leave an unconscious person unattended.
7. Never attempt to give an unconscious person anything by mouth.

Skin Exposure

1. Small exposures of skin should be promptly flooded with water and followed by thorough, gentle scrubbing with soap and water.
2. Contaminated clothing should be removed and the underlying skin washed with running water, followed by soap and water.
3. If extensive skin or clothing contact occurs, the person should be hurried to the nearest shower and clothing removed while standing in the shower. The skin should be thoroughly washed with water, followed by gentle scrubbing with soap and water.
4. Contaminated clothing should not be worn again until laundered.
5. A physician should be consulted in those cases which show skin effects from chemical exposure or in which symptoms of systemic illness appear.

Swallowing

1. Examine the mouth for cuts, burns, swelling, unusual coloring or odor. **DO NOT administer ipecac syrup, give anything to drink or eat, or do anything to induce vomiting.**
2. **Call 911 or the Poison Control Center at 1-800-451-1428 or 1-800-222-1222**
3. Keep the victim lying down and as warm and comfortable as possible.

Eye Exposure

1. Take the victim immediately to the nearest water fountain or other source of clean running water.
2. Spread the lids with the fingers and allow the water to flood the eye.
3. Roll the eye about so that the water may contact all eye surfaces.
4. Continue such emergency washing for 15 minutes.
5. Take the victim to a first aid station or to a physician as soon as possible after the emergency washing period.

Damaging Winds

Precautionary Measures (after warning has been received).

- **Keep your radio and/or television on** and listen for the latest weather reports and advisories. If power fails, use portable battery-powered radios or your car radio. Check your battery-powered equipment. Your radio may be your most essential item. Emergency cooking facilities and flashlights should also be checked.
- **Board up** windows or protect them with storm shutters or tape. Danger to small windows is mainly from wind-driven debris. Larger windows may be broken by wind pressure. To relieve wind pressure, open windows about one inch at opposite ends of the home.
- **Secure outdoor** objects that might be blown away or uprooted. Garbage cans, garden tools, signs, porch furniture, and a number of other harmless items become missiles of destruction in gale-force winds. Anchor them or store them inside before the storm strikes.
- **Store drinking water** in clean, closed containers, such as jugs, bottles, etc.; these may be needed if water supplies become contaminated due to wind damage.
- **Keep your car fueled**. Service stations may be inoperable after the storm strikes due to interrupted electrical power.
- **Prepare to evacuate** to a designated shelter if you live in a mobile home or other nonpermanent dwelling.
- **Remain indoors** during the storm itself, (staying away from windows) and in the most reinforced area of the home. Travel can be extremely dangerous during high winds.

Safe Measures (after passage of damaging winds)

- **Remain at home** or in shelters until informed by local officials that it is safe to leave.
- **Keep tuned to your radio or television** for instructions on;
    - Where to go to obtain necessary medical care in your area.
    - Where to go for necessary emergency assistance for housing, clothing, and food.
    - Ways to help yourself and your community recover from the emergency.
- **Use extreme caution** in entering or working in buildings that may have been damaged or weakened by the disaster; they may collapse without warning. Also, there may be gas leaks or electrical short circuits.
- **Don't take lanterns, torches, or other flame sources into buildings** that have been damaged by wind; there may be leaking gas lines or flammable material present. Use battery-powered flashlights, spotlights, etc.
- **Stay away from fallen or damaged electric wires**; these may still be dangerous. Notify the utility company, the police, or the fire department.
- **Check for leaking gas pipes** in your home. Do this by smell--don't use matches or candles. If you smell gas:
    1. Open all windows and doors.
    2. Turn off the main gas valve at the meter. A tool for this purpose should be stored chained to, or near the gas meter.
    3. Leave the house immediately.
    4. Notify the gas company or the police.
    5. Don't re-enter the house until you are told it is safe to do so.

Note: If any of your electrical appliances are wet, first turn off the main power switch in your house, then unplug the wet appliance, dry it out, reconnect it, and turn on the main power switch. Do not do any of these things while you are wet or standing in water. If a fuse is blown when the electric power is restored, turn off the main power switch again, then inspect for short circuits in your home wiring, appliances, and equipment.

- **Check your food and water supplies** before using them. Foods that require refrigeration may be spoiled if electric power has been off for some time. Also, do not use fresh food that has come in contact with flood waters.
- **Stay away from disaster areas**. Sightseeing could interfere with first-aid or rescue work and may be dangerous as well.
- **Don't drive unless necessary**, but if you must, drive with caution. Watch for hazards to yourself and others and report them to local police or fire departments.
- **Report broken sewer** or water mains to the local water department.

Drought and Public Water Shortage

An emergency water shortage can be caused by prolonged drought, poor water supply management or contamination of a surface water supply source or aquifer.

A drought is a period of abnormally dry weather that persists long enough to produce serious effects (crop damage, water supply shortages, etc.). The severity of the drought depends upon the degree of moisture deficiency, the duration, and the size of the affected area.

Drought can affect vast territorial regions and large population numbers. In effect, drought is a silent but very damaging phenomenon that is rarely lethal but enormously destructive. Drought can ruin local and regional economies that are agricultural and tourism based. Drought also creates environmental conditions that increase risk of other hazards such as fire, flash flood, and possible landslides/debris flow.

Poor water quality management can result in the demand for water exceeding the available supply. This can be exacerbated by fluctuations in regional precipitation, excessive water demand, or rapid residential development.

Emergency water shortages can also be caused by contamination of a water supply. A major spill of a petroleum product or hazardous chemical on a major river can force communities to shut down water treatment plants. Although typically more localized, the contamination of ground water or an aquifer can also disrupt the use of well water.

Water Conservation
Conserving water is very important during emergency water shortages. Water saved by one user may be enough to protect the critical needs of others. Irrigation practices can be changed to use less water, or crops can be planted that use less water. Cities and towns can ration water, factories can change manufacturing methods, and individuals can practice water-saving measures to reduce consumption. If everyone reduces water use during a drought, more water will be available to share.

1. **Practice indoor water conservation:**

   General

   - Never pour water down the drain when there may be another use for it. Use it to water your indoor plants or garden.
   - Repair dripping faucets by replacing washers. One drop per second wastes 2,700 gallons of water per year!

   Bathroom

   - Check all plumbing for leaks. Have leaks repaired by a plumber.
   - Install a toilet displacement device to cut down on the amount of water needed to flush. Place a one-gallon plastic jug of water into the tank to displace toilet flow (do not use a brick, it may dissolve and loose pieces may cause damage to the internal parts). Be sure installation does not interfere with the operating parts.
   - Consider purchasing a low-volume toilet that uses less than half the water of older models. NOTE: In many areas, low-volume units are required by law.
   - Replace your showerhead with an ultra-low-flow version.
   - Do not take baths—take short showers—only turn on water to get wet and lather and then again to rinse off.
   - Place a bucket in the shower to catch excess water for watering plants.
   - Don’t let the water run while brushing your teeth, washing your face or shaving.
   - Don't flush the toilet unnecessarily. Dispose of tissues, insects, and other similar waste in the trash rather than the toilet.

Kitchen

- Operate automatic dishwashers only when they are fully loaded. Use the "light wash" feature if available to use less water.
- Hand wash dishes by filling two containers—one with soapy water and the other with rinse water containing a small amount of chlorine bleach.
- Most dishwashers can clean soiled dishes very well, so dishes do not have to be rinsed before washing. Just remove large particles of food, and put the soiled dishes in the dishwasher.
- Store drinking water in the refrigerator. Don't let the tap run while you are waiting for water to cool.
- Do not waste water waiting for it to get hot. Capture it for other uses such as plant watering or heat it on the stove or in a microwave.
- Do not use running water to thaw meat or other frozen foods. Defrost food overnight in the refrigerator, or use the defrost setting on your microwave.
- Clean vegetables in a pan filled with water rather than running water from the tap.
- Kitchen sink disposals require a lot of water to operate properly. Start a compost pile as an alternate method of disposing of food waste, or simply dispose of food in the garbage.

Laundry

- Operate automatic clothes washers only when they are fully loaded or set the water level for the size of your load.

Long-term indoor water conservation

- Retrofit all household faucets by installing aerators with flow restrictors.
- Consider installing an instant hot water heater on your sink.
- Insulate your water pipes to reduce heat loss and prevent them from breaking if you have a sudden and unexpected spell of freezing weather.
- If you are considering installing a new heat pump or air-conditioning system, the new air-to - air models are just as efficient as the water-to air type and do not waste water.
- Install a water-softening system only when the minerals in the water would damage your pipes. Turn the softener off while on vacation.
- When purchasing a new appliance, choose one that is more energy and water efficient.

2. **Practice outdoor water conservation**:

General

- If you have a well at home, check your pump periodically. If the automatic pump turns on and off while water is not being used, you have a leak.

Car washing

- Use a shut-off nozzle on your hose that can be adjusted down to a fine spray, so that water flows only as needed.
- Consider using a commercial car wash that recycles water. If you wash your own car, park on the grass so that you will be watering it at the same time.

Lawn Care

- Don't over water your lawn. A heavy rain eliminates the need for watering for up to two weeks. Most of the year, lawns only need one inch of water per week.
- Water in several short sessions rather than one long one in order for your lawn to better absorb moisture.
- Position sprinklers so water lands on the lawn and shrubs and not on paved areas.

- Avoid sprinklers that spray a fine mist. Mist can evaporate before it reaches the lawn. Check sprinkler systems and timing devices regularly to be sure they operate properly.
- Raise the lawn mower blade to at least three inches, or to its highest level. A higher cut encourages grass roots to grow deeper, shades the root system, and holds soil moisture.
- Plant drought-resistant lawn seed.
- Avoid over-fertilizing your lawn. Applying fertilizer increases the need for water. Apply fertilizers that contain slow-release, water-insoluble forms of nitrogen.
- Use a broom or blower instead of a hose to clean leaves and other debris from your driveway or sidewalk. Do not leave sprinklers or hoses unattended. A garden hose can pour out 600 gallons or more in only a few hours.

Pool

- Consider installing a new water-saving pool filter. A single back flushing with a traditional filter uses 180 to 250 gallons of water.
- Cover pools and spas to reduce evaporation of water.

Long term outdoor conservation

- Plant native and/or drought-tolerant grasses, ground covers, shrubs, and trees. Once established, they do not need water as frequently and usually will survive a dry period without watering. Small plants require less water to become established. Group plants together based on similar water needs.
- Install irrigation devices that are the most water efficient for each use. Micro and drip irrigation and soaker hoses are examples of efficient devices.
- Use mulch to retain moisture in the soil. Mulch also helps control weeds that compete with landscape plants for water.
- Avoid purchasing recreational water toys that require a constant stream of water.
- Avoid installing ornamental water features (such as fountains) unless they use recycled water.

Participate in public water conservation programs of your local government, utility or water management district. Follow water conservation and water shortage rules in effect. Remember, you are included in the restrictions even if your water comes from a private well. Be sure to support community efforts that help develop and promote a water conservation ethic.

Contact your local water authority, utility district, or local emergency management agency for information specific to your area.

Earthquake

The actual movement of the earth in an earthquake is seldom a direct cause of death or injury. However, this movement causes collapse of buildings and other structures. Most casualties result from falling objects and debris, such as falling bricks and plaster, splintering glass, toppling furniture, collapsing walls, falling pictures and mirrors, rock slides on mountains and hillsides, fallen power lines, fire resulting from broken gas lines, and spillage of flammables--a danger which may be aggravated by lack of water due to broken water mains, and drastic human actions resulting from panic.

Before an Earthquake

1. Check your home for earthquake hazards. Bolt down or provide strong support for water heaters and other gas appliances. Use flexible connections whenever possible. Place large and heavy objects on the lower shelves. Securely fasten shelves to the walls. Brace or anchor high or top heavy objects. Install secure cupboard closures. In new construction and alterations or additions, follow building codes to minimize earthquake hazards. Conduct calm family discussions about earthquakes and other possible disasters. DO NOT tell frightening stories about disasters. Develop a plan for reunification of your family. This should include three meeting places (two are back-up). Review frequently so that everyone knows it well.
2. Hold occasional home earthquake drills to provide your family with the knowledge to avoid injury and panic during an earthquake.
3. Teach responsible members of your family how to turn off electricity, gas, and water valves and mains.
4. Take first aid training and provide for all others possible in your family to learn first aid procedures appropriate to their level of understanding.
5. Keep supplies and medications to provide for your family for at least 72 hours. This includes food, water, clothing, flashlight and extra batteries, portable radio and extra batteries, first-aid kit, tools, soap, canned fruit juices or soft drinks, pots and pans, plastic knives, forks, spoons or old metal flatware, can opener, plastic cups (not glass), fire extinguisher, sleeping bags, toilet articles, candles and matches.
6. Keep metal box containing valuable papers (insurance policies, house inventory and pictures, wills, medical records, deeds, etc.) with emergency supplies. Store a duplicate copy outside of home, such as with a relative or in a safety deposit box.
7. Keep family auto in good repair and always at least half full of gasoline. Have a first aid kit and a two-day survival kit (for at least two people) in your car at all times.
8. Know how to properly dispose of garbage and human waste and have the materials on hand (see sanitation section).
9. Keep immunizations up-to-date for all family members.
10. Consult an engineer as to the structural stability of your home.

During an Earthquake

1. Remain calm. Think through the consequences of any action you plan to take. Try to reassure others.
2. If indoors, watch out for falling plaster, bricks, light fixtures, and other objects. Watch out for high bookcases, china cabinets, shelves, and other furniture which might slide or topple. Stay away from windows, mirrors, and chimneys. If in danger, get under a table, desk, or bed in a corner away from windows, or in a strong doorway. Encourage others to follow your example. Do not run outside. Don't use candles, matches, or other open flames during the tremor. Douse all fires. Grab anything handy (coat, blanket, newspapers, cardboard box, etc.) to shield your head and face from falling debris and splintering glass. If nothing else is available cup your hands over your face for protection.
3. If outside, avoid high buildings, walls, power poles, and other objects that could fall. Do not run through streets. If surrounded by buildings, take shelter in the nearest strong one. If possible, move to an open area away from all hazards. If in an automobile, stop in the safest place available, preferably an open area. Stop as quickly as safety permits, but stay in the vehicle for the shelter it offers.

4. Special preparations for the elderly. Make every action count. Stay calm and take deep breaths. Keep away from windows or other glass. Brace yourself in a doorway or inside hallway, or lower yourself to the floor and slide under a sturdy table. If you aren't able to get to a safer area, just sit down wherever you are. Don't try to remain standing. If you can't move safely and quickly, stay where you are even if you are in bed. Try to protect your head and body with whatever is available--pillows, books, lap robe, your arms. If you are in a wheelchair, lock your wheel brakes. Do whatever you can to protect yourself until the shaking stops. If you have pets-particularly a guide or hearing dog--keep them securely harnessed or confined. When the quake seems over, call for help if you need it, and don't give up. Use your whistle or flashlight; pound on walls; go to a safe window and wave a brightly colored, highly-visible object. Do anything you can to attract attention, and don't give up.

After the Earthquake

1. Check for injuries. Do not attempt to move seriously injured persons unless they are in immediate danger of further injury.
2. Check for fires and fire hazards.
3. Wear shoes in all areas near debris or broken glass.
4. Check utility lines and appliances for damage. If gas leaks exist, shut off the main gas valves. Shut off electrical power if there is damage to wiring. Do not use matches or lighters until it has been established that there are no gas leaks.
5. Do not turn light switches on and off. This creates sparks which can ignite gas from broken lines.
6. Clean up spilled medicines, drugs, and other potentially harmful materials immediately.
7. Draw a moderate quantity of water in case service should be disrupted. Do not draw a large quantity, as this could interfere with fire fighting. If water is off, emergency water may be obtained from hot water heaters, toilet tanks, melted ice cubes, and water packed in canned vegetables, or stored water. If water pipes are damaged, shut off the water supply at the main valve.
8. Check to see that sewage lines are intact before permitting continued flushing of toilet.
9. Do not eat or drink anything from open containers near shattered glass, as they may contain glass particles. If their use is essential, such liquids may be strained through folds of a clean handkerchief or cloth.
10. Check chimneys for cracks and damage. Unnoticed damage could later lead to a destructive fire. The initial check should be made from a distance. Approach chimneys with great caution.
11. Check closets and storage shelf areas. Open closet and cupboard doors carefully to guard against objects falling.
12. Prepare for possible evacuation. Gather the 72-hour kit you have previously assembled. If your house and utilities are badly damaged, you may be living in your backyard or other neighborhood location for a few days.
13. Check your house or apartment building for structural damage and, if deemed necessary, evacuate your family until authorities declare it safe to return. Stay out of severely damaged buildings; aftershocks can topple them.
14. Do not heed or spread rumors. They often do great harm following disasters. Stay off the telephone, except to report an emergency. Turn on your radio and/or television to get latest emergency bulletins.
15. Do not go sightseeing immediately in areas where buildings have collapsed or where electric wires may be down. Keep the streets clear for passage of emergency vehicles. Be prepared for additional earthquake shocks.
16. Respond to requests for assistance from police, fire fighting, and relief organizations, but do not go into damaged areas unless your assistance has been requested. Cooperate fully with local authorities.
17. If power is off, check your freezer and plan meals to use up foods which will spoil quickly. Ice crystals remain in the center of food in a well-stocked freezer for up to three days. Plan WHAT to take out WHEN in order to limit the number of times the freezer is opened. Tape your plan on the freezer.
18. Use outdoor charcoal broilers, camping stoves, or fondue pots for emergency cooking. Be sure there is adequate ventilation.

Extreme Heat

Heat kills by pushing the human body beyond its limits. In extreme heat and high humidity, evaporation is slowed and the body must work extra hard to maintain a normal temperature.

Most heat disorders occur because the victim has been overexposed to heat or has over-exercised for his or her age and physical condition. Older adults, young children, and those who are sick or overweight are more likely to succumb to extreme heat.

Conditions that can induce heat-related illnesses include stagnant atmospheric conditions and poor air quality. Consequently, people living in urban areas may be at greater risk from the effects of a prolonged heat wave than those living in rural areas. Also, asphalt and concrete store heat longer and gradually release heat at night, which can produce higher nighttime temperatures known as the "urban heat island effect."

Before Extreme Heat
To prepare for extreme heat, you should:

- Install window air conditioners snugly; insulate if necessary.
- Check air-conditioning ducts for proper insulation.
- Install temporary window reflectors (for use between windows and drapes), such as aluminum foil-covered cardboard, to reflect heat back outside.
- Weather-strip doors and sills to keep cool air in.
- Cover windows that receive morning or afternoon sun with drapes, shades, awnings, or louvers. (Outdoor awnings or louvers can reduce the heat that enters a home by up to 80 percent.)
- Keep storm windows up all year.

During a Heat Emergency
The following are guidelines for what you should do if the weather is extremely hot:

- Stay indoors as much as possible and limit exposure to the sun.
- Stay on the lowest floor out of the sunshine if air conditioning is not available.
- Consider spending the warmest part of the day in public buildings such as libraries, schools, movie theaters, shopping malls, and other community facilities. Circulating air can cool the body by increasing the perspiration rate of evaporation.
- Eat well-balanced, light, and regular meals. Avoid using salt tablets unless directed to do so by a physician.
- Drink plenty of water. Persons who have epilepsy or heart, kidney, or liver disease; are on fluid-restricted diets; or have a problem with fluid retention should consult a doctor before increasing liquid intake.
- Limit intake of alcoholic beverages.
- Dress in loose-fitting, lightweight, and light-colored clothes that cover as much skin as possible.
- Protect face and head by wearing a wide-brimmed hat.
- Check on family, friends, and neighbors who do not have air conditioning and who spend much of their time alone.
- Never leave children or pets alone in closed vehicles.
- Avoid strenuous work during the warmest part of the day. Use a buddy system when working in extreme heat, and take frequent breaks.

Fire: Major Structural

According to the Red Cross, the third leading cause of accidental death in recent years has been fire. Most of these fires have occurred in the home, which is a particularly dangerous environment. Fire is always a possible danger, and a probable secondary disaster in the event of a major earthquake or flood. It is always important that you follow safety measures for fire prevention, detection, and escape. It is doubly important after an earthquake because regular fire fighters may not be able to get to you in time. Floods and other natural disasters will also spawn a large number of fires because of electrical shorts and severed gas lines.

Prevention

Most accidental fires can be avoided with a little care. Firemen have a saying that "a clean building seldom burns." Good housekeeping is the first line of defense against home fires. Do you practice fireproof housekeeping?

There are several steps a family can take to minimize the possibility of a fire starting in their home and to minimize the effects of a fire should one occur.

- Install fire extinguishers in danger spots. The hand pump, inexpensive, 5-gallon, water type is preferred. Carbon Tetrachloride and other vaporizing liquid type extinguishers are NOT recommended for use in small enclosed spaces, because of the dangers of poisonous fumes.
- Make sure fire extinguishers are accessible and maintained.
- Keep a garden hose near the water faucet at all times, especially in the winter months when fire danger is greatest.
- Install adequate insulation at all heating locations. This is particularly important around wood and coal-burning stoves.
- Repair or replace defective or inadequate electrical wiring.
- Use only the proper size fuses.
- Replace frayed electrical cords or broken plugs.
- Do not run cords under rugs or hook cords over nails.
- Keep electric outlets safely loaded (no overloads).
- Keep appliances clean and in good repair.
- Perform required maintenance on heating systems.
- Dispose of trash immediately.
- Use only non-flammable cleaning fluids.
- Keep gasoline and other flammable liquids in tightly- closed metal containers.
- DO NOT use a combustible liquid to freshen a fire.
- Keep garage, basement, attic, closets, etc. free of rubbish.
- Keep the yard and garden well trimmed (no tall weeds, etc.).
- Use a fireplace screen.
- Install a spark arrestor on your chimney.
- Place curtains and drapes so that they won't blow into flames or touch hot surfaces from stoves, fireplaces, candles, etc.
- Supervise children playing near an open fire.
- Store matches in metal containers out of sight and reach of small children.
- Turn pot handles away from the edge of the stove.
- Keep important papers and documents in a fire-proof box or safe.
- Install and maintain home smoke detectors. More lives are saved each year by smoke detectors than all other fire fighting tools and equipment combined. A home without one is only inviting trouble or tragedy.
- Instruct babysitters in fire and other emergency procedures.
- Post emergency numbers for the fire department on ALL telephones.

- Each family should have a pre-arranged escape plan for getting out of their home in case of fire. There should be at least two exits from every room (doors or windows).
- Determine a pre-arranged meeting area that all family members should go to IMMEDIATELY when they leave the home if it is on fire. This could be a tree in the front yard, the neighbor's porch, etc. This will facilitate taking a "head count" and could save the life of a would-be rescuer who returns to a burning building to search for someone who has already gotten out.
- If a major fire develops near your home, refer to safety rules in Fire: Forest and Wild Land section.

Detection
Statistics show that most FATAL fires occur while the family is sleeping. Smoke and toxic gases are the killers in most home fires rather than flames. **Smoke detectors** (either ionization types or photo-electric detectors powered by electricity or battery) can alert your family while the fire is still small, which may mean the difference between life and death.

For **minimum protection** there should be a smoke detector between the bedrooms or sleeping areas and the rest of the house, and/or a smoke detector at the head of each stairway. The amount of detection equipment needed in your home or apartment will be determined by the size and floor plan of your living space, your life style, and how much money your family is willing to spend. (Your local fire department can give you assistance in planning your fire detection system).

Escape
If you are in a burning building, above all, **remain calm**. More people are killed each year through foolish actions caused by panic than by actual flames. If a fire does occur, your home might be saved if you know how to fight fires, act promptly, and have on hand some basic fire fighting tools. Give detailed fire fighting duties to each able family member so that you all learn to work as an efficient team. Be sure everyone in your home understands what starts fires, how they spread, and what can be done to control them. In a major earthquake, neighbors will have to work together to keep fires from spreading. When a fire breaks out **evacuate yourself and your family members first**, then call the fire department. If there is time and if you have the proper equipment to fight a fire and can do so without endangering yourself you may then begin to fight the fire the best way you can. Keep the following in mind to minimize dangers.

- Before opening an interior door feel the door, or the handle, to see if it is hot. If hot or warm, do not open it if there is any other means of escape.
- Before opening a door take a deep breath and hold it. Hot air on the other side of the door could sear your lungs causing instant death.
- If you must open a door, brace your shoulder against it so that you can slam it immediately if the air on the other side is hot.
- Close doors behind you to prevent drafts and to slow the fire spread.
- Crawl along the floor on your stomach because the air will be cooler and fresher there; hot air and poisonous gases will rise.
- If trapped in a burning building do not panic. Stuff drapes or clothing into cracks around the door to prevent smoke from entering your room.
- Open or break the windows at the top to let out smoke and poisonous gases.
- Open or break the window at the bottom and breathe from this point.
- If there is a telephone in the room, call the fire department and report your exact location.
- If at all possible, **get out of the building fast**. Do not stop to dress, gather pets, valuables, or toys.
- Once out--stay out!! Smoke and toxic gases can kill you in minutes.

Meet at the established meeting place outside as soon as possible. When two people reach the meeting place, one should leave to notify the fire department. The second should stay to report to the rest of the family that the caller escaped and has gone for help.

Fire Drills
Include fire escape procedures in your family earthquake drill, and hold separate fire drills on other occasions. Give special consideration for the very young, handicapped, and the elderly. Remember that smoke, some toxic gases, and heat rise. You can simulate fire conditions by crawling on hands and knees to the nearest wall and following it around to the door. Keep head about 18 inches from the floor and take short, small breaths while escaping. Never stand up! Cover mouth with a damp cloth if possible. Teach your family not to open doors if they are hot. Keep doors and windows closed to limit rapid spreading of the fire.

When staying in a hotel or motel, the key to survival is you! Before making reservations ask about fire prevention measures (sprinkler system and smoke detectors). Always know two ways to exit your room and the hotel (do not use the elevator). At first sign of fire, leave as fast as possible, taking room key. If you encounter smoke, take the second exit route or return to your room, close the door and call for help. Be sure to follow the steps outlined above.

For children, a fire drill should be a wise mixture of seriousness and a game--never a scary experience. Children who have had fire drill practice at home will almost automatically do the right thing in a real emergency. Without such practice, they all too often hide under a bed or in a closet, which can mean disaster. Instruct babysitters on what to do in case of fire.

Fire Extinguishers
There are many types of fire extinguishers. It is best to read the labels and instructions. Not all types of extinguishers can be used on every kind of fire.

Pressurized water extinguishers (Class A) are good for trash, paper, cloth, and wood fires, but are normally not used for flammable liquid (Class B) or electrical (Class C) fires. To extinguish a flammable liquid fire, first smother it. Then use an extinguisher marked for Class B fires. The extinguishing agent should cover the extra flaming liquid surface.

Extra caution must be used when extinguishing electrical fires. Use a Class C extinguisher. This contains a non-conducting extinguishing agent that will prevent the user from getting shocked. A Class ABC extinguisher can be used on all three types of fires.

Care of home fire fighting equipment. Keep tools that can be used to fight fire where they can be easily reached. Don't put the garden hose, rake, and shovel out of reach just because the gardening season is over. Check the hose for leaks and damaged connections. Make sure that faucet adapters are where they can be found quickly. Hang a ladder in a convenient location even when it isn't needed for painting or putting up window screens. Inspect the rungs to make sure they are solid and clean. Store buckets where they can be found when needed and keep them free of trash.

Extinguishing Fires
Under normal conditions, it is best to call the fire department immediately after evacuating the premises. While help is on the way, try to control the spread of the fire yourself if it is safe to do so. Always keep an open escape route between you and the fire.

Understanding fire can help a great deal in reducing fears about it. Three things must exist in order for a fire to occur. These are heat, fuel, and air. Most fires can be prevented.
Examples:

- Store flammable liquids away from water heaters, furnaces, and other heat and spark sources.
- Store oily rags in a sealed metal container.
- Keep old rags, newspapers, and trash away from furnace.
- Most fires can be extinguished by the quickest means possible, using whatever tools are available.

Remember the three basic ways to put out a fire:

- Take away its fuel.
- Take away its air (smother it).
- Take away its heat by cooling it with water.

Know how to fight a fire. When a fire is noticed, get the building's occupants out first, notify the fire department, and then fight the fire. Assume that help will not be available immediately and go to work with whatever equipment is at hand. Don't stop fighting the fire until it is out or until it becomes too big for you.

All fires destroy by heating and burning, but all fires are not put out by using the same method. The method for extinguishing a fire depends on what is burning and what caused it to burn. It is important to know the difference because the wrong method of fighting a fire can increase the danger.

Using water to fight a fire The type of water stream that is used on a fire is important, especially when the amount of water available is limited. Water should be applied to the fire as closely as possible. If the fire is small, the best method is for a person to get close enough to use a spray on it. A spray cools the fuel more quickly. A fire that is too hot for close approach may have to be fought with a solid stream of water. If this is the case, be sure to keep the stream moving over the base of the fire.

Ordinary combustible fires Ordinary combustibles are the materials that are usually found in and around the home such as paper, wood, and cloth. Fires that are burning ordinary combustibles can be put out by cooling or smothering. A stream of water from a garden hose or a fire extinguisher or splashes from a pail of water will cool the burning object so that it will stop.

When using a hose or fire extinguisher, aim the stream at the base of the fire, not at the smoke or flame. Make sure it is completely out and that there are no smoldering embers left to rekindle the fire.

If a person's clothing catches on fire, don't let the victim run but force him onto the ground. Smother the flames with a coat or blanket, or roll the person up in a rug. Simply rolling the victim without a covering will help. Try to prevent the person from inhaling the flames. Immediately treat them for shock and bathe them in cool water. Get medical attention immediately.

To protect a house from catching fire due to flying sparks or heat radiation from another fire, remove all rubbish that is near the house, close the windows, and wet down the house and yard with a hose.

Flammable liquids and gas fires Flammable liquids are those liquids which give off flammable vapors, including gasoline, oil, kerosene, and paint. Be very careful when fighting this kind of fire because it is not like an ordinary combustible fire. A flammable liquid fire must be smothered. Use a foam, dry chemical, or carbon dioxide (CO_2) extinguisher. These fire extinguishers are marked for Class B fires. When using the extinguisher, avoid splattering as this could spread the fire. If the burning liquid is spread out and is not deep, the fire can be put out by throwing sand or dirt on it.

Never use a solid stream of water on this type of fire. The flammable liquid will splatter and will also float on top of the water. The fire will not be smothered and the fire can spread as the water and flammable liquid flow away. A water spray can later be used to cool the fuel and completely extinguish the fire.

If the fire is in a confined area, such as an oil drum, paint bucket, or kitchen skillet, it can be put out by covering the container with a lid. Small cooking fires can be smothered by turning off the gas, covering a pot, closing the oven door, or dousing it with salt or baking soda.

Note: If burning gas is the cause of the fire, turn off the gas supply valve. Don't try to extinguish burning gas without turning off the supply valve, otherwise the result may be an explosion. If the flow of gas cannot be stopped, allow the gas to continue burning and protect the surroundings. This type of fire is very likely after an earthquake.

Electrical fires are caused by the shorting of electric wires or the overheating of electrical equipment. There is always the danger of electrical shock while fighting this type of fire. First, try to unplug the appliance or shut off the main electric switch at the fuse box. Then fight the fire with dry chemical, carbon dioxide, or any other Class C fire extinguisher. The fire extinguishing agent in these extinguishers will not conduct electricity, and the user will not get an electrical shock. Never use water on an electrical fire unless you are absolutely sure that the power has been shut off; otherwise you can get a shock that could kill you. Don't turn the power back on or reconnect the appliance until the cause of the fire has been found and corrected.

Fire: Forest and Wild Land

Though forest and brush fires can start without warning, federal and state governments maintain a system of watch towers or surveillance aircraft manned by the U.S. Forest Service and state forest services to ensure that the location of fires can be determined, warnings issued, and necessary emergency actions taken in prompt fashion.

Safety Rules

When a forest or major brush fire threatens:

1. Keep posted on the progress of fires by listening to radio and television stations.
2. To know what to do when a forest or brush fire threatens may mean the difference between life and death. If you spot a fire, report it immediately by telephone to the local police department or fire department (post the telephone numbers of these officials in a convenient location). Do not use the telephone to receive information and instructions--depend on radio or television.
3. If you are burning trash or debris, immediately put the fire out.
4. If you are home and have a fire in the fireplace or in other structures, put it out immediately.
5. Make certain your own property is clear of combustibles, particularly brush that may be hazardous to your home or other structures. Do not store combustible items next to your home such as wood.
6. Hook up garden hoses and prepare to wet down your roof if sparks from the fire threaten. (Due to water pressure this may not apply in some areas).
7. If time permits and it is required, remove and clear away flammable vegetation up to 30 feet on each side of your home or other structures.
8. Close all windows (cover if possible, and remove combustibles near windows and other openings. Protect and secure pets and stock animals. Double pane windows are an excellent barrier against the external heat of fire.
9. After your own home is prepared, be ready to assist in constructing community fire breaks if asked to do so.
10. If area evacuation is called for, get full information on exit routes and relocation areas.

If your community is involved in a forest or brush fire:

1. Cooperate with local authorities; keep posted on the progress of the fire by listening to radio and television broadcasts.
2. Follow evacuation directions.
3. Do not use fire fighting entrance routes. These are reserved for emergency vehicles only.
4. Assist in community fire fighting operations if you are between ages 18 to 50 and are able-bodied. All others should keep clear of the fire area.
5. Make certain you are under the supervision of designated fire fighters. Follow their instructions, since they know how the fire is being fought and where you will be of most value to the operation.
6. Follow safety precautions to prevent getting trapped. Ground winds and fuels are tricky. Follow instructions. Keep informed. Know where the fire is in relation to you. Know your escape route. Keep calm. Maintain communication with your supervisor. Don’t find yourself alone.

Flood

The National Oceanic and Atmospheric Administration (NOAA), through its Weather Service's River Forecast Centers and River District Offices, issues flood forecasts and warnings when rainfall is enough to cause rivers to overflow their banks and when melting snow may combine with rainfall to produce similar effects.

Flood warnings are forecasts of impending floods and are distributed to the public by radio and television and through local government emergency personnel. The warning message indicates the expected severity of flooding (minor, moderate, or major), the affected river or lake, and when and where flooding will begin. Careful preparations and prompt response will reduce property loss and ensure personal safety.

Flash flood warnings are the most urgent type of flood warning issued and are transmitted to the public over radio, television, and by other means established by local needs.

Area radio and television stations usually broadcast the latest flood information and warnings. However, more specific advice and instructions will be given through local media by local government.

Before the Flood

- Find out if your residence is located in a probable flood plain so you can determine if you may be flooded. Make advance plans (what to do and where to go) for a flood emergency.
- Keep a stock of food which requires little cooking and no refrigeration; electric power may be interrupted.
- Keep portable radio, emergency cooking equipment, lights, and flashlights in working order.
- Keep first aid and critical medical supplies (prescriptions, insulin, etc.) at hand.
- Keep your automobile fueled; if electrical power is cut off, filling stations may not be able to operate pumps for several days.
- Keep materials like sandbags, plywood, plastic sheeting, and lumber handy for emergency waterproofing.
- Keep your insurance policies and a list of personal property in a safe place, such as a safe deposit box. Know the name and location of the agent(s) who issued these policies.
- Buy flood insurance. Protection against loss due to floods is not covered under a homeowner's policy. You should contact your property/casualty agent or broker about eligibility for flood insurance, which is offered through the National Flood Insurance Program (NFIP). Generally, there is a five-day waiting period for this policy to become effective, so don't wait until the last minute to apply. Generally, any contents contained in a walled and roofed structure can be covered. However, the contents must be insured separately. Flood insurance will not cover such things as gas and liquid storage tanks, landscaping, sidewalks, crops, pollutants, septic tanks, roads, motor vehicles, valuable papers (such as deeds, accounts, currency, etc.), livestock or pets.
- Protect your valuables by transferring them to floors above projected flood levels and enclose them in polyethylene sacks.
- Have 72-hour emergency supplies ready, in portable container. Store in location for easy access near main exit of home.
- Stay tuned to your emergency radio station for instructions.

When You Receive a Flood Warning

- Store drinking water in closed, clean containers. Water service may be interrupted.
- If flood is likely, and time permits, move essential items and furniture to upper floors of your house.
- If time permits, before leaving home, cut off all electric circuits at the fuse panel or disconnect switch. If this is not possible, turn off or disconnect all electrical appliances. Shut off the water service and gas

valves in your home. (Before making announcements on shutting off gas valves, local officials should check with the gas company.)
- Turn off the main water valve to trap the maximum amount of uncontaminated water in your home.
- If forced or advised to leave your home, move to a safe area before access is cut off by flood water.
- Take 72-hour emergency kits with you plus extra blankets if possible.

During the Flood
- Avoid areas subject to sudden flooding.
- Do not attempt to cross a flowing stream where water is above your knees.
- Do not attempt to drive over a flooded road. You can be stranded and trapped.
- If your vehicle stalls, abandon it immediately and seek higher ground. Many people drown while trying to rescue their car.
- Listen for information on the location of emergency housing and public feeding stations.

After the Flood
- Do not use fresh food that has come in contact with flood waters.
- Assume that the water is contaminated and purify it by boiling or use of chemicals until notified by local authorities. Wells should be pumped out and the water tested before drinking.
- Do not visit disaster areas; your presence will probably hamper rescue and other emergency operations.
- Do not handle live electrical equipment in wet areas; electrical equipment should be checked and dried before it is returned to service.
- Use flashlights, not lanterns or torches, to examine buildings; flammable substances may be inside.
- Report broken utility lines to police, fire, or other appropriate authorities. Telephone numbers of local agencies, as well as emergency numbers for our area, should be published and broadcast by the local media.
- Keep tuned to radio and television stations for instructions on:
    - Where to go to obtain necessary medical care in your area.
    - Where to go for emergency assistance such as housing, clothing, food, etc.
    - Ways to help yourself and your community recover from the emergency.

Pandemic Influenza

An influenza (flu) pandemic is a worldwide outbreak of flu disease that occurs when a new type of influenza virus appears that people have not been exposed to before (or have not been exposed to in a long time). The pandemic virus can cause serious illness because people do not have immunity to the new virus. Pandemics are different from seasonal outbreaks of influenza that we see every year. Seasonal influenza is caused by influenza virus types to which people have already been exposed. Its impact on society is less severe than a pandemic, and influenza vaccines (flu shots and nasal-spray vaccine) are available to help prevent widespread illness from seasonal flu.

Influenza pandemics are different from many of the other major public health and health care threats facing our country and the world. A pandemic will last much longer than most flu outbreaks and may include "waves" of influenza activity that last 6-8 weeks separated by months. The number of health care workers and first responders able to work may be reduced. Public health officials will not know how severe a pandemic will be until it begins.

Some Differences Between Seasonal Flu and Pandemic Flu

Seasonal Flu	Pandemic Flu
Caused by influenza viruses that are similar to those already circulating among people.	Caused by a new influenza virus that people have not been exposed to before. Likely to be more severe, affect more people, and cause more deaths than seasonal influenza because people will not have immunity to the new virus.
Symptoms include fever, headache, tiredness, dry cough, sore throat, runny nose, and muscle pain. Deaths can be caused by complications such as pneumonia.	Symptoms similar to the common flu but may be more severe and complications more serious.
Healthy adults usually not at risk for serious complications (the very young, the elderly, and those with certain underlying health conditions at increased risk for serious complications).	Healthy adults may be at increased risk for serious complications.
Every year in the United State, on average: • 5% to 20% of the population gets the flu; • More than 200,000 people are hospitalized from flu complications; and • About 36,000 people die from flu.	The effects of a severe pandemic could be much more damaging than those of a regular flu season. It could lead to high levels of illness, death, social disruption, and economic loss. Everyday life could be disrupted because so many people in so many places become seriously ill at the same time. Impacts could range from school and business closings to the interruption of basic services such a public transportation and food delivery.

As you and your family plan for an influenza pandemic, think about the challenges you might face particularly if a pandemic is severe.

The following are some challenges you or your family may face and recommendations to help you cope.

Essential Services You Depend on May Be Disrupted

- Plan for the possibility that usual services may be disrupted. These could include services provided by hospitals and other healthcare facilities, banks, restaurants, government offices, telephone and cellular phone companies, and post offices.
- Stores may close or have limited supplies. The planning checklists can help you determine what items you should stockpile to help you manage without these services
- Transportation services may be disrupted and you may not be able to rely on public transportation. Plan to take fewer trips and store essential supplies.
- Public gatherings, such as volunteer meetings and worship services, may be canceled. Prepare contact lists including conference calls, telephone chains, and email distribution lists, to access or distribute necessary information.
- Consider that the ability to travel, even by car if there are fuel shortages, may be limited.
- You should also talk to your family about where family members and loved ones will go in an emergency and how they will receive care, in case you cannot communicate with them.
- In a pandemic, there may be widespread illness that could result in the shut down of local ATMs and banks. Keep a small amount of cash or traveler's checks in small denominations for easy use.

Food and Water Supplies May Be Interrupted and Limited

Food

- Store two weeks of nonperishable food.
- Select foods that do not require refrigeration, preparation (including the use of water), or cooking.
- Insure that formula for infants and any child's or older person's special nutritional needs are a part of your planning.

Water

- Store two weeks of water, 1 gallon of water per person per day. (2 quarts for drinking, 2 quarts for food preparation/sanitation), in clean plastic containers. Avoid using containers that will decompose or break, such as milk cartons or glass bottles.

Being Able to Work May Be Difficult or Impossible

- Ask your employer how business will continue during a pandemic.
- Discuss staggered shifts or working at home with your employer. Discuss telecommuting possibilities and needs, accessing remote networks, and using portable computers.
- Discuss possible flexibility in leave policies. Discuss with your employer how much leave you can take to care for yourself or a family member
- Plan for possible loss of income if you are unable to work or the company you work for temporarily closes.

Schools and Daycare Centers May Be Closed for an Extended Period of Time

Schools, and potentially public and private preschool, childcare, trade schools, and colleges and universities may be closed to limit the spread of flu in the community and to help prevent children from becoming sick. Other school-related activities and services could also be disrupted or cancelled including: clubs, sports/sporting

events, music activities, and school meals. School closings would likely happen very early in a pandemic and could occur on short notice.

- Talk to your teachers, administrators, and parent-teacher organizations about your school's pandemic plan, and offer your help.
- Plan now for children staying at home for extended periods of time, as school closings may occur along with restrictions on public gatherings, such as at malls, movie theaters.
- Plan home learning activities and exercises that your children can do at home. Have learning materials, such as books, school supplies, and educational computer activities and movies on hand.
- Talk to teachers, administrators, and parent-teacher organizations about possible activities, lesson plans, and exercises that children can do at home if schools are closed. This could include continuing courses by TV or the internet.
- Plan entertainment and recreational activities that your children can do at home. Have materials, such as reading books, coloring books, and games, on hand for your children to use.

Medical Care for People with Chronic Illness Could be Disrupted

In a severe pandemic, hospitals and doctors' offices may be overwhelmed.

- If you have a chronic disease, such as heart disease, high blood pressure, diabetes, asthma, or depression, you should continue taking medication as prescribed by your doctor.
- Make sure you have necessary medical supplies such as glucose and blood-pressure monitoring equipment.
- Talk to your healthcare provider to ensure adequate access to your medications.
- If you receive ongoing medical care such as dialysis, chemotherapy, or other therapies, talk with your health care provider about plans to continue care during a pandemic.

Prevention and Treatment

Stay Healthy

- These steps may help prevent the spread of respiratory illnesses such as the flu:
- Cover your nose and mouth with a tissue when you cough or sneeze—throw the tissue away immediately after you use it.
- Wash your hands often with soap and water, especially after you cough or sneeze. If you are not near water, use an alcohol-based (60-95%) hand cleaner.
- Avoid close contact with people who are sick. When you are sick, keep your distance from others to protect them from getting sick too.
- If you get the flu, stay home from work, school, and social gatherings. In this way you will help prevent others from catching your illness.
- Try not to touch your eyes, nose, or mouth. Germs often spread this way.

Vaccination

Vaccines are used to protect people from contracting a virus once a particular threat is identified. After an individual has been infected by a virus, a vaccine generally cannot help to combat it. Because viruses change over time, a specific pandemic influenza vaccine cannot be produced until a pandemic influenza virus emerges and is identified. Once a pandemic influenza virus has been identified, it will likely take 4-6 months to develop, test, and begin producing a vaccine.

While there is currently no human pandemic influenza in the world, the federal government is facilitating production of vaccines for several existing avian influenza viruses. These vaccines may provide some protection should one of these viruses change and cause an influenza pandemic. The supply of pandemic vaccine will be limited, particularly in the early stages of a pandemic. Efforts are being made to increase vaccine-manufacturing capacity in the United States so that supplies of vaccines would be more readily available. In addition, research is underway to develop new ways to produce vaccines more quickly.

Antivirals
A number of antiviral drugs are approved by the U.S. Food and Drug Administration to treat and prevent seasonal influenza. Some of these antiviral medications may be effective in treating pandemic influenza. These drugs may help prevent infection in people at risk and shorten the duration of symptoms in those infected with pandemic influenza. However, it is unlikely that antiviral medications alone would effectively contain the spread of pandemic influenza. The federal government is stockpiling antiviral medications that would most likely be used in the early stages of an influenza pandemic and working to develop new antiviral medications. These drugs are available by prescription only.

Stay Informed
- Knowing the facts is the best preparation. Identify sources you can count on for reliable information. If a pandemic occurs, having accurate and reliable information will be critical.
- Reliable, accurate, and timely information is available at www.pandemicflu.gov.
- Another source for information on pandemic influenza is the Centers for Disease Control and Prevention (CDC) Hotline at: 1-800-CDC-INFO (1-800-232-4636). This line is available in English and Spanish, 24 hours a day, 7 days a week.
- Listen to local and national radio, watch news reports on television, and read your newspaper and other sources of printed and web-based information.
- Talk to your local health care providers and public health officials.

Questions and Answers

Will bird flu cause the next influenza pandemic?
Avian influenza (bird flu) is a disease of wild and farm birds caused by avian influenza viruses. Bird flu viruses do not usually infect humans, but since 1997 there have been a number of confirmed cases of human infection from bird flu viruses. Most of these resulted from direct or close contact with infected birds (for example: domesticated chickens, ducks, and turkeys). It is important not to handle, play with, or pick up dead birds.

The spread of bird flu viruses from an infected person to another person has been reported very rarely and has not been reported to continue beyond one person. A worldwide pandemic could occur if a bird flu virus were to change so that it could easily be passed from person to person. Experts around the world are watching for changes in bird flu viruses that could lead to an influenza pandemic.

Is it safe to eat poultry?
Yes, it is safe to eat properly cooked poultry. Cooking destroys germs, including bird flu viruses. The United States maintains trade restrictions on the importation of poultry and poultry products from countries where the highly pathogenic H5N1 avian influenza strain has been detected in commercial or traditionally raised poultry, not in wild or migratory birds.

Guidelines for the safe preparation of poultry include the following:
- Wash hands before and after handling food.
- Keep raw poultry and its juices away from other foods.
- Keep hands, utensils, and surfaces, such as cutting boards, clean.
- Use a food thermometer to ensure food has reached the safe internal temperature – in all parts of the bird. Cook poultry to at least 165°F to kill food-borne germs that might be present, including the avian influenza virus.

What types of birds can carry bird flu viruses?
Avian influenza viruses can infect chickens, turkeys, pheasants, quail, ducks, geese, and guinea fowl, as well as a wide variety of other birds, including migratory waterfowl.

Each year, there is a flu season for birds just as there is for humans and, as with people, some forms of the flu are worse than others, depending on how strong the virus. A weak virus may cause only mild illness in infected poultry and birds, but a strong virus could cause severe and extremely contagious illness, and even death among infected poultry and birds.

Will the seasonal flu shot protect me against pandemic influenza?

- No, it won't protect you against pandemic influenza. But flu shots can help you to avoid seasonal flu.
- Get a flu shot to help protect you from seasonal flu.
- Get a pneumonia shot to prevent secondary infection if you are over the age of 65 or have a chronic illness such as diabetes or asthma. For specific guidelines, talk to your health care provider or call the Centers for Disease Control and Prevention (CDC) Hotline at 1-800-232-4636.
- Make sure that your family's immunizations are up-to-date.

What is the U.S. government doing to prepare for pandemic influenza?

The U.S. government has been preparing for pandemic influenza for several years. In November 2005, the President announced the National Strategy for Pandemic Influenza. Ongoing preparations include the following:

- Monitoring migratory and wild birds for avian flu.
- Working with the World Health Organization (WHO) and other nations to help detect human cases of bird flu and respond to an influenza pandemic, if one begins.
- Supporting the manufacturing and testing of influenza vaccines, including finding more reliable and quicker ways to make large quantities of vaccines through cell-based technologies.
- Developing a national stockpile of antiviral drugs to help treat and control the spread of disease.
- Supporting the efforts of federal, state, tribal, and local health agencies to prepare for and respond to pandemic influenza, including hosting planning summits with state and local leaders in each state.
- Working with federal agencies to prepare and to encourage communities, businesses, and organizations to plan for pandemic influenza. These efforts have included joint exercises in pandemic preparation.

You can prepare for an influenza pandemic now. You should know both the magnitude of what can happen during a pandemic outbreak and what actions you can take to help lessen the impact of an influenza pandemic on you and your family. This checklist will help you gather the information and resources you may need in case of a flu pandemic.

1. To plan for a pandemic:

- Store a two week supply of water and food. During a pandemic, if you cannot get to a store, or if stores are out of supplies, it will be important for you to have extra supplies on hand. This can be useful in other types of emergencies, such as power outages and disasters.
- Ask your doctor and insurance company if you can get an extra supply of your regular prescription drugs.
- Have nonprescription drugs and other health supplies on hand, including pain relievers, stomach remedies, cough and cold medicines, fluids with electrolytes, and vitamins.
- Talk with family members and loved ones about how they would be cared for if they got sick, or what will be needed to care for them in your home.
- Volunteer with local groups to prepare and assist with emergency response.
- Get involved in your community as it works to prepare for an influenza pandemic.

2. To limit the spread of germs and prevent infection:

- Teach your children to wash hands frequently with soap and water, and model the current behavior.
- Teach your children to cover coughs and sneezes with tissues, and be sure to model that behavior.

- Teach your children to stay away from others as much as possible of they are sick. Stay home from work and school if sick.

3. Items to have on hand for an extended stay at home:

- **Examples of food and non-perishables**
    - Ready-to-eat canned meats, fish, fruits, vegetables, beans, and soups
    - Protein or fruit bars
    - Dry cereal or granola
    - Peanut butter or nuts
    - Dried Fruit
    - Crackers
    - Canned juices
    - Bottled water
    - Canned or jarred baby food and formula
    - Pet food
    - Other nonperishable foods

- **Examples of medical, health, and emergency supplies:**
    - Prescribed medical supplies such as glucose and blood-pressure monitoring equipment
    - Soap and water, or alcohol-based (60-95%) hand wash
    - Medicines for fever, such as acetaminophen or ibuprofen
    - Thermometer
    - Anti-diarrhea medication
    - Vitamins
    - Fluids with electrolytes
    - Cleansing agent/soap
    - Flashlight
    - Batteries
    - Portable radio
    - Manual can opener
    - Garbage bags
    - Tissues, toilet paper, disposable diapers

Terrorism

Terrorism is the use of force or violence against persons or property in violation of the criminal laws of the United States for purposes of intimidation, coercion, or ransom.

Terrorists often use threats to:

- Create fear among the public.
- Try to convince citizens that their government is powerless to prevent terrorism.
- Get immediate publicity for their causes.

Acts of terrorism include threats of terrorism; assassinations; kidnappings; hijackings; bomb scares and bombings; cyber attacks (computer-based); and the use of chemical, biological, nuclear and radiological weapons.

High-risk targets for acts of terrorism include military and civilian government facilities, international airports, large cities, and high-profile landmarks. Terrorists might also target large public gatherings, water and food supplies, utilities, and corporate centers. Further, terrorists are capable of spreading fear by sending explosives or chemical and biological agents through the mail.

Within the immediate area of a terrorist event, you would need to rely on police, fire, and other officials for instructions. However, you can prepare in much the same way you would prepare for other crisis events.

The following are general guidelines:

- Be aware of your surroundings.
- Move or leave if you feel uncomfortable or if something does not seem right.
- Take precautions when traveling. Be aware of conspicuous or unusual behavior. Do not accept packages from strangers. Do not leave luggage unattended. You should promptly report unusual behavior, suspicious or unattended packages, and strange devices to the police or security personnel.
- Learn where emergency exits are located in buildings you frequent. Plan how to get out in the event of an emergency.
- Be prepared to do without services you normally depend on—electricity, telephone, natural gas, gasoline pumps, cash registers, ATMs, and Internet transactions.

There is always a risk of a terrorist threat. Each threat condition assigns a level of alert appropriate to the increasing risk of terrorist attacks. Beneath each threat condition are some suggested protective measures that the government, the private sector, and the public can take.

In each case, as threat conditions escalate, protective measures are added to those already taken in lower threat conditions. The measures are cumulative.

Citizen Guidance on the Homeland Security Advisory System

Low Risk

- Develop a family emergency plan. Share it with family and friends, and practice the plan. Visit www.Ready.gov for help creating a plan.
- Create an "Emergency Supply Kit" for your household.
- Be informed. Visit www.Ready.gov or obtain a copy of "Preparing Makes Sense, Get Ready Now" by calling 1-800-BE-READY.
- Know where to shelter and how to turn off utilities (power, gas, and water) to your home.
- Examine volunteer opportunities in your community, such as Citizen Corps, Volunteers in Police Service, Neighborhood Watch or others, and donate your time. Consider completing an American Red Cross first aid or CPR course , or Community Emergency Response Team (CERT) course .

Guarded Risk

- Complete recommended steps at level green.
- Review stored disaster supplies and replace items that are outdated.
- Be alert to suspicious activity and report it to proper authorities.

Elevated Risk

- Complete recommended steps at levels green and blue.
- Ensure disaster supplies are stocked and ready.
- Check telephone numbers in family emergency plan and update as necessary.
- Develop alternate routes to/from work or school and practice them.
- Continue to be alert for suspicious activity and report it to authorities.

High Risk

- Complete recommended steps at lower levels.
- Exercise caution when traveling, pay attention to travel advisories.
- Review your family emergency plan and make sure all family members know what to do.
- Be Patient. Expect some delays, baggage searches and restrictions at public buildings.
- Check on neighbors or others that might need assistance in an emergency.

Severe Risk

- Complete all recommended actions at lower levels.
- Listen to local emergency management officials.
- Stay tuned to TV or radio for current information/instructions.
- Be prepared to shelter or evacuate, as instructed.
- Expect traffic delays and restrictions.
- Provide volunteer services only as requested.
- Contact your school/business to determine status of work day.

*Developed with input from the American Red Cross.

Thunderstorms and Lightning

All thunderstorms are dangerous. Every thunderstorm produces lightning. In the United States, an average of 300 people is injured and 80 people are killed each year by lightning. Although most lightning victims survive, people struck by lightning often report a variety of long- term, debilitating symptoms.

Other associated dangers of thunderstorms include tornadoes, strong winds, hail, and flash flooding. Flash flooding is responsible for more fatalities—more than 140 annually—than any other thunderstorm-associated hazard.

Dry thunderstorms that do not produce rain that reaches the ground are most prevalent in the western United States. Falling raindrops evaporate, but lightning can still reach the ground and can start wildfires.

The following are facts about thunderstorms:

- They may occur singly, in clusters, or in lines.
- Some of the most severe occur when a single thunderstorm affects one location for an extended time.
- Thunderstorms typically produce heavy rain for a brief period, anywhere from 30 minutes to an hour.
- Warm, humid conditions are highly favorable for thunderstorm development.
- About 10 percent of thunderstorms are classified as severe—one that produces hail at least three-quarters of an inch in diameter, has winds of 58 miles per hour or higher, or produces a tornado.

The following are facts about lightning:

- Lightning's unpredictability increases the risk to individuals and property.
- Lightning often strikes outside of heavy rain and may occur as far as 10 miles away from any rainfall.
- "Heat lightning" is actually lightning from a thunderstorm too far away for thunder to be heard. However, the storm may be moving in your direction!
- Most lightning deaths and injuries occur when people are caught outdoors in the summer months during the afternoon and evening.
- Your chances of being struck by lightning are estimated to be 1 in 600,000, but could be reduced even further by following safety precautions.
- Lightning strike victims carry no electrical charge and should be attended to immediately.

Before Thunderstorms and Lightning

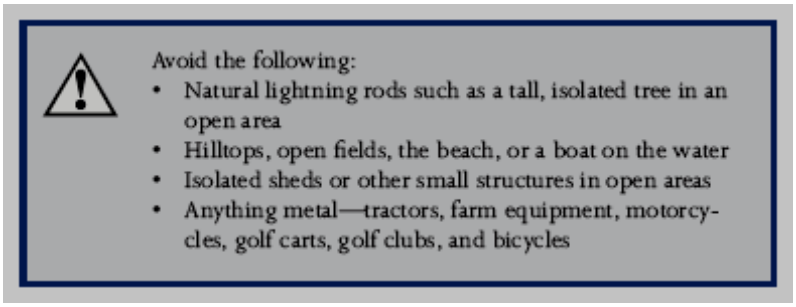
To prepare for a thunderstorm, you should do the following:

- Remove dead or rotting trees and branches that could fall and cause injury or damage during a severe thunderstorm.
- Remember the 30/30 lightning safety rule: Go indoors if, after seeing lightning, you cannot count to 30 before hearing thunder. Stay indoors for 30 minutes after hearing the last clap of thunder.

The following are guidelines for what you should do if a thunderstorm is likely in your area:

- Postpone outdoor activities.
- Get inside a home, building, or hard top automobile (not a convertible). Although you may be injured if lightning strikes your car, you are much safer inside a vehicle than outside.
- Remember, rubber-soled shoes and rubber tires provide NO protection from lightning. However, the steel frame of a hard-topped vehicle provides increased protection if you are not touching metal.
- Secure outdoor objects that could blow away or cause damage.
- Shutter windows and secure outside doors. If shutters are not available, close window blinds, shades, or curtains.
- Avoid showering or bathing. Plumbing and bathroom fixtures can conduct electricity.
- Use a corded telephone only for emergencies. Cordless and cellular telephones are safe to use.

- Unplug appliances and other electrical items such as computers and turn off air conditioners. Power surges from lightning can cause serious damage.



During a Thunderstorm

If you are:	Then:
In a forest	Seek shelter in a low area under a thick growth of small trees.
In an open area	Go to a low place such as a ravine or valley. Be alert for flash floods.
On open water	Get to land and find shelter immediately.
Anywhere you feel your hair stand on end (which indicates that lightning is about to strike)	Squat low to the ground on the balls of your feet. Place your hands over your ears and your head between your knees. Make yourself the smallest target possible and minimize your contact with the ground. DO NOT lie flat on the ground.

After a Thunderstorm

Call 9-1-1 for medical assistance as soon as possible.

The following are things you should check when you attempt to give aid to a victim of lightning:

- Breathing - if breathing has stopped, begin mouth-to-mouth resuscitation.
- Heartbeat - if the heart has stopped, administer CPR.
- Pulse - if the victim has a pulse and is breathing, look for other possible injuries. Check for burns where the lightning entered and left the body. Also be alert for nervous system damage, broken bones, and loss of hearing and eyesight.

Tornadoes

Tornadoes are nature's most violent storms. Spawned from powerful thunderstorms, tornadoes can cause fatalities and devastate a neighborhood in seconds. A tornado appears as a rotating, funnel-shaped cloud that extends from a thunderstorm to the ground with whirling winds that can reach 300 miles per hour. Damage paths can be in excess of one mile wide and 50 miles long. Every state is at some risk from this hazard.

Some tornadoes are clearly visible, while rain or nearby low-hanging clouds obscure others. Occasionally, tornadoes develop so rapidly that little, if any, advance warning is possible.

Before a tornado hits, the wind may die down and the air may become very still. A cloud of debris can mark the location of a tornado even if a funnel is not visible. Tornadoes generally occur near the trailing edge of a thunderstorm. It is not uncommon to see clear, sunlit skies behind a tornado.

The following are facts about tornadoes:

- They may strike quickly, with little or no warning.
- They may appear nearly transparent until dust and debris are picked up or a cloud forms in the funnel.
- The average tornado moves Southwest to Northeast, but tornadoes have been known to move in any direction.
- The average forward speed of a tornado is 30 MPH, but may vary from stationary to 70 MPH.
- Tornadoes can accompany tropical storms and hurricanes as they move onto land.
- Waterspouts are tornadoes that form over water.
- Tornadoes are most frequently reported east of the Rocky Mountains during spring and summer months.
- Peak tornado season in the southern states is March through May; in the northern states, it is late spring through early summer.
- Tornadoes are most likely to occur between 3 p.m. and 9 p.m., but can occur at any time.

Tornado Watch
Tornadoes are possible. Remain alert for approaching storms. Watch the sky and stay tuned to radio or television for information

Tornado Warning
A tornado has been sighted or indicated by weather radar. Take shelter immediately.

Before a Tornado

- Be alert to changing weather conditions.
- Listen to NOAA Weather Radio or to commercial radio or television newscasts for the latest information.
- Look for approaching storm
- Look for the following danger signs:
    - Dark, often greenish sky
    - Large hail
    - A large, dark, low-lying cloud (particularly if rotating)
    - Loud roar, similar to a freight train.
    - If you see approaching storms or any of the danger signs, be prepared to take shelter immediately

If you are under a tornado warning, seek shelter immediately!

During a Tornado

If you are in:	Then:
A structure (e.g. residence, small building, school, nursing home, hospital, factory, shopping center, high-rise building)	Go to a pre-designated shelter area such as a safe room, basement, storm cellar, or the lowest building level. If there is no basement, go to the center of an interior room on the lowest level (closet, interior hallway) away from corners, windows, doors, and outside walls. Put as many walls as possible between you and the outside. Get under a sturdy table and use your arms to protect your head and neck. Do not open windows.
A vehicle, trailer, or mobile home	Get out immediately and go to the lowest floor of a sturdy, nearby building or a storm shelter. Mobile homes, even if tied down, offer little protection from tornadoes.
The outside with no shelter	• Lie flat in a nearby ditch or depression and cover your head with your hands. Be aware of the potential for flooding • Do not get under an overpass or bridge. You are safer in a low, flat location. • Never try to outrun a tornado in urban or congested areas in a car or truck. Instead, leave the vehicle immediately for safe shelter. • Watch out for flying debris. Flying debris from tornadoes causes most fatalities and injuries.

Winter Storms

The National Weather Service is responsible for the timely issuance of weather warnings to the public, including the approach of winter storms.

Ice Storm. Freezing rain or drizzle is called an ice storm. Moisture falls in liquid form but freezes upon impact. The term "heavy" is used to indicate an ice coating sufficiently heavy to cause significant damage to trees, overhead wires, and similar objects. Ice storms are sometimes incorrectly referred to as "sleet storms." Sleet is identified as frozen raindrops (ice pellets) which bounce when hitting the ground or other objects. Sleet does not stick to trees and wires but sleet in sufficient depth does cause hazardous driving conditions.

Snow. When used in a forecast, without a qualifying word such as "occasional" or "intermittent," snow means that the fall of snow is of a steady nature and will probably continue for several hours without letup.

- "Heavy snow warnings" are issued to the public when a fall of six inches or more is expected in a 12-hour period, or a fall of 10 inches or more is expected in a 24-hour period.
- Snow flurries are defined as snow falling for short durations at intermittent periods; however, snowfall during the flurries may reduce visibility to an eighth of a mile or less. Accumulations from snow flurries are generally small.
- Snow squalls are brief, intense falls of snow and are comparable to summer rain showers. They are accompanied by gusty surface winds.
- Blowing and drifting snows generally occur together and result from strong winds and falling snow or loose snow on the ground. Blowing snow is defined as snow lifted from the surface by the winds and blown about to a degree that horizontal visibility is greatly restricted.
- "Drifting snow" is a term used in forecasts to indicate that strong winds will blow falling snow or loose snow on the ground into significant drifts.
- Blizzards are the most dramatic and perilous of all winter storms, characterized by low temperatures and by strong winds bearing large amounts of snow. Most of the snow accompanying a blizzard is in the form of fine, powdery particles of snow which are whipped in such great quantities that at times visibility is only a few yards.
- Blizzard warnings are issued when winds with speeds of at least 35 mph are accompanied by considerable falling or blowing snow and temperatures of 20 degrees F or lower are expected to prevail for an extended period of time.
- Severe blizzard warnings are issued when blizzards of extreme proportions are expected and indicate winds with speeds of at least 45 mph plus a great density of falling or blowing snow and a temperature of 10 degrees F or lower.

Cold Wave Warning. This term indicates an expected rapid fall in temperature within a 24hour period which will require substantially increased protection for agricultural, industrial, commercial, and social activities.

Hazardous Driving (Travelers) Warning. This is issued to indicate that falling, blowing or drifting snow, freezing rain or drizzle, sleet, or strong winds will make driving difficult.

Stockmen's Warning. This alerts ranchers and farmers that livestock will require protection from large accumulations of snow or ice, a rapid drop in temperature, or strong winds.

Wind Chill Factor. Strong winds combined with low temperatures cause a very rapid cooling of exposed surfaces. Unprotected portions of the body, such as the face or hands, can chill rapidly and should be protected as much as possible from the cold wind. A very strong wind, combined with a temperature slightly below freezing, can have the same chilling effect as a temperature nearly 50 degrees F lower in a calm atmosphere. Arctic explorers and military experts have developed a term called the "wind chill factor," which states the cooling effect of various wind and temperature combinations. The Weather Service issues this information as the "wind chill index."

Winter Storm Safety Rules

- Keep informed of winter storms by listening to the latest National Weather Service warnings and bulletins on radio and television.
- Check battery-powered equipment before the storm arrives. A portable radio or television set may be your only contact with the world outside the winter storm. Also check emergency cooking facilities and flashlights.
- Check your supply of heating fuel. Fuel carriers may not be able to move if a winter storm buries your area in snow.
- Check your food supply. Your supplies should include food that requires no cooking or refrigeration in case of power failure.
- Prevent fire hazards due to overheated coal or oil-burning stoves, fireplaces, heaters, or furnaces.
- Stay indoors during storms and very cold weather. If you must go out, avoid overexertion.
- Use moderation when shoveling snow. It can be very exhausting for anyone not in good physical condition and may bring on a heart attack--a major cause of death during and after winter storms.
- Dress to fit the season. If you spend much time outdoors, wear loose-fitting, lightweight, warm clothing in several layers; layers can be removed to prevent perspiring and subsequent chill. Outer garments should be lightly woven, water-repellent, and hooded. The hood should protect much of your face and cover your mouth to ensure warm breathing and protect your lungs from the extremely cold air. Remember that entrapped, insulating air, warmed by body heat, is the best protection against cold. Layers of protective clothing are more effective and efficient than single layers of thick clothing. Mittens, snug at the wrist, are better protection than fingered gloves.

Use of Automobiles during Winter Storms

Your automobile can be your best friend--or worst enemy--during winter storms, depending on your preparations. Get your car "winterized" before the storm season begins. These things should be checked before winter storms strike the area: ignition system, defroster, snow tires, heater, wiper blades, brakes, cooling system, tight exhaust system, lubrication, battery, lights, chains, antifreeze, fuel system and winter grade oil.

Winter Storm Car Kit. Be equipped for the worst. Carry a winter storm car kit, especially if cross country travel is anticipated. The kit should contain blankets or sleeping bags, matches and candles, an empty 3-pound can with plastic cover, extra clothing, high-calorie nonperishable food, compass and road maps, knife, first aid kit, shovel, sack of sand, flashlight or signal light, windshield scraper, booster cables, two chains, fire extinguisher, and an axe.

Winter travel by automobile is serious business. Keep these points in mind, especially for severe storms:

- If the storm exceeds or even tests your limitations, seek available refuge immediately.
- Plan your travel and select primary and alternate routes.
- Check latest weather information by phone or on your radio.
- Try to travel with others along.
- Travel in convoy with another vehicle, if possible.
- Always fill the gasoline tank before entering open country, even for a short distance.
- Drive carefully and defensively.

If you are trapped in a vehicle by a blizzard

- Avoid overexertion and exposure. Exertion from attempting to push your car, shoveling heavy drifts, or performing other difficult chores during the strong winds, blinding snow, and bitter cold of a blizzard may cause a heart attack--even for persons in apparently good physical condition.
- Stay in your vehicle. Do not attempt to walk out of a blizzard. Disorientation comes quickly in blowing and drifting snow. Being lost in open country during a blizzard is almost certain death. You are more likely to be sheltered in your car.

- Don't panic. Keep fresh air in your car. Freezing wet snow and wind-driven snow can completely seal the passenger compartment. Beware of the "gentle killers"--carbon monoxide and oxygen starvation. Run the motor and heater sparingly, and only with a rear window open for ventilation.
- Exercise by clapping hands and moving arms and legs vigorously from time to time, and do not stay in one position for long. Turn on the dome light at night to make the vehicle visible to work crews. Keep watch. Do not permit all occupants of the car to sleep at once.

Hypothermia
Cold kills in two distinct steps:
Exposure and Exhaustion: The moment your body begins to lose heat faster than it produces it, you are undergoing exposure. Two things happen:

- You voluntarily exercise to stay warm.
- Your body makes involuntary adjustments (such as shivering) to preserve normal temperature in the vital organs.

Either response drains your energy reserves. The only way to stop the drain is to reduce the degree of exposure. The time to prevent hypothermia is during the period of exposure and gradual exhaustion.

Hypothermia: If exposure continued until your energy reserves are exhausted:

- Cold reaches the brain depriving you of judgment and reasoning power. You will not realize this is happening.
- You will lose control of your hands (they will become numb and you will not be able to grasp or hold onto things.) This is hypothermia. Your internal temperature is sliding downward. Without treatment, this slide leads to stupor, collapse, and death.

One of the most common types of hypothermia deaths is drowning while swimming in lakes and rivers. The swimmer is usually not aware of just how cold the water is. He tries to swim too far and the cold of the water zaps his energy, lowers his body temperature; he develops cramps and drowns. Swimming in lakes and rivers is not at all like swimming in heated swimming pools. Even on a hot summer day the water may be dangerously cold. Use extreme caution, especially when swimming in high mountain lakes or rivers or in reservoirs fed by melted snow.

Duck hunters and other sportsmen who hunt or fish from boats in fall and winter must use extra caution. If they fall into the lake or river they may not even have a chance to save themselves because the shock to the body's nervous system from being suddenly plunged into ice cold water can instantly cripple and drown them before they even know what happened.

Your first Line of Defense: Avoid Exposure

- **Stay dry**: When clothes get wet, they lose about 90% of their insulating value. Wool loses less; cotton, down, and synthetics lose more.
- **Beware of the wind**: A slight breeze carries heat away from bare skin much faster than still air. Wind drives cold air under and through clothing. Wind refrigerates wet clothes by evaporating moisture from the surface. Wind multiplies the problems of staying dry.
- **Understand cold**: Most hypothermia cases develop in air temperatures between 30 and 50 degrees. Most outdoorsmen simply can't believe such temperatures can be dangerous. They fatally underestimate the danger of being wet at such temperatures. 50 degree water is unbearably cold. The cold that kills is cold water running down the neck and legs, cold water held against the body by sopping clothes, cold water flushing body heat from the surface of the clothes. Don't ask, "How cold is the air?" Ask instead, "How cold is the water against my body?"
- **Use your clothes**: Put on rain gear before you get wet. Put on wool clothes before you start shivering.

Your Second Line of Defense: Terminate Exposure
If you cannot stay dry and warm under existing weather conditions, using the clothes you have with you, terminate exposure.

- **Be brave** enough to give up reaching the peak or getting the fish or whatever you had in mind.
- **Get out of the wind and rain**. Build a fire. Concentrate on making your camp or bivouac as secure and comfortable as possible.
- **Never ignore shivering**. Persistent or violent shivering is clear warning that you are on the verge of hypothermia
- **Make camp!** Forestall exhaustion. Make camp while you still have a reserve of energy. Allow for the fact that exposure greatly reduces your normal endurance.

You may think you are doing fine when in fact your exercising is the only thing preventing you from going into hypothermia. If exhaustion forces you to stop, however briefly:

- Your rate of body heat production instantly drops by 50% or more.
- Violent, incapacitating shivering may begin immediately.
- You may slip into hypothermia in a matter of minutes.

Appoint a foul-weather leader. Make the best protected member of your party responsible for calling a halt before the least protected member becomes exhausted or goes into violent shivering.

Your Third Line of Defense: Detect Hypothermia
If your party is exposed to wind, cold, and wet, think hypothermia. Watch yourself and others for symptoms.

- Uncontrollable fits of shivering
- Vague, slow, slurred speech
- Memory lapses. Incoherence
- Immobile, fumbling hands
- Frequent stumbling. Lurching gait.
- Drowsiness (in this state to sleep is to die)
- Apparent exhaustion. Inability to get up after a rest.

Your Fourth and Last Line of Defense: Treatment
The victim may deny he's in trouble. Believe the symptoms, not the patient. Even mild symptoms demand immediate, drastic treatment.

- Get the victim out of the wind and rain.
- Strip off ALL wet clothes.
- If the patient is only mildly impaired:
    - Give him warm drinks.
    - Get him into dry clothes and warm sleeping bag. Well wrapped, warm (not hot) rocks or canteens will hasten recovery.
- If the patient is semi-conscious or worse:
    - Try to keep him awake. Give warm drinks.
    - Leave him stripped. Put him in a sleeping bag with another person (also stripped).
    - If you have a double bag, put the victim between two warm donors. Skin to skin contact is the most effective treatment at this point.
    - Build a fire to warm the camp.

Think Hypothermia
If you are outdoors for recreation, you presumably do not intend to jeopardize your life. Hypothermia may be a new word to you but it's the ONLY word that describes the rapid, progressive mental and physical collapse

accompanying the chilling of the inner core of the human body. Hypothermia is caused by exposure to cold, aggravated by wet, wind, and exhaustion. It is the No. 1 killer of outdoor recreation.

- Take heed of hypothermia weather.
- Watch carefully for warning symptoms.
- Choose equipment with hypothermia in mind.
- Think hypothermia.

Emergency Communications

In times of disaster, normal means of communications may not be available. Telephone systems, computer networks, even cellular phones are highly susceptible to failure in the event of an emergency. Knowing, understanding, and planning for just such an emergency can save lives.

Amateur Radio
Amateur radio (sometimes called HAM radio) is one of the most versatile options available to private citizens. It provides tens of thousands of channels for local communications and thousands more for long distance communications.

By using hand held amateur radios it is possible to communicate hundreds of miles using linked repeater systems. One such system - the Evergreen Inter-tie, covers from central Vancouver Island, in British Columbia, Canada, south to almost the California border, and eastward to central Montana. There are also satellites, amateur television, data networks, and many more facilities. Hams also volunteer to help community and public safety agencies.

Local repeaters also have what are called "autopatch" systems, or a telephone interconnection which allows the amateur radio operator to make telephone calls over the radio.

These repeaters are available to all licensed amateurs. Most repeaters welcome visitors, but it is common to join with the group which runs the repeater(s), that you most commonly use, to help defray costs via annual dues (usually $10-$20/year).

The license to operate these radios does require that you pass a test, but in recent years a license has been made available which no longer requires knowledge of the Morse Code. The test is 55 questions long, in two parts. The questions are published so that a student can study the exact questions that will be asked. Classes are frequently taught to help with this test preparation.

CB Radios
The Citizens Band Radio Service (CB) is a private, two-way, short-distance voice communications service for personal or business activities. The CB Radio Service may also be used for voice paging.

One of the nice things about CB Radio is that you do not need a license to use one.

Channel 9 is the Emergency Assistance Frequency- however you may use any channel to ask for emergency assistance

Walkie-Talkie
Walkie-Talkie radios may be used over short distances. Many of the walkie-talkie type radios are used in sets. To speak to others they must have a similar radio or have their radio set to the frequency you are broadcasting on.

Walkie-Talkie radios may be useful for short distance communication between family members or neighbors. Walkie-Talkies may not be useful for long distances and care should be taken when choosing this form of communication equipment.

Cellular Phones
Cellular Phones have become very popular over the last few years. They can be very handy in many emergency situations where you may need assistance, but are not near a phone. They may be very useful in personal or family emergency situations such as having car trouble or an accident and you need assistance quickly.

Keep in mind that Cellular phones may not be available in some disaster situations where much of the telephone grid is knocked out.

Communication Power

No matter what form of communication equipment you use, they all use some type of electrical power. Whether it is from a wall plug or small batteries you should prepare so that in times of emergency you have adequate power to operate your equipment.

If your communication equipment runs off of 110 AC/DC, how are you going to run your equipment in the case of a power failure? Does your equipment run off a battery? Do you have backup batteries? Many people use solar power to run their radio equipment and charge their batteries.

Recovery

Recovering from a disaster is usually a gradual process. Safety is a primary issue, as well as your mental and physical well-being. If assistance is available, knowing how to access it makes the process faster and less stressful. This section offers some general advice on steps to take after disaster strikes in order to begin getting your home, your community, and your life back to normal.

Your first concern after a disaster is your family's health and safety. You need to consider possible safety issues and monitor family health and well-being.

Health and Safety

- **Aiding the Injured**
  - Check for injuries. Do not attempt to move seriously injured persons unless they are in immediate danger of death or further injury. If you must move an unconscious person, first stabilize the neck and back, then call for help immediately.
  - If the victim is not breathing, carefully position the victim for artificial respiration, clear the airway, and commence mouth-to-mouth resuscitation.
  - Maintain body temperature with blankets. Be sure the victim does not become overheated.
  - Never try to feed liquids to an unconscious person.

- **Health**
  - Be aware of exhaustion. Don't try to do too much at once. Set priorities and pace yourself. Get enough rest.
  - Drink plenty of clean water.
  - Eat well.
  - Wear sturdy work boots and gloves.
  - Wash your hands thoroughly with soap and clean water often when working in debris.

- **Safety Issues**
  - Be aware of new safety issues created by the disaster. Watch for washed out roads, contaminated buildings, contaminated water, gas leaks, broken glass, damaged electrical wiring, and slippery floors.
  - Inform local authorities about health and safety issues, including chemical spills, downed power lines, washed out roads, smoldering insulation, and dead animals.

- **Dealing with Human Remains**

  Although this is a topic that we all hope never to have to deal with, it is important to realize that in a severe disaster we may have to deal with human remains. According to the Centers for Disease Control, "there is no direct risk of contagion or infectious disease from being near human remains for people who are not directly involved in recovery or other efforts that require handling dead bodies." Epidemics do not occur spontaneously after a natural disaster and dead bodies do not lead to outbreaks of exotic diseases. Often this belief will lead authorities to use mass burials or mass cremations to dispose of bodies quickly, however, this is unnecessary. In any situation, it is important to respect the process of identifying and preserving bodies as well as any cultural or religious customs.

  In a disaster situation, health risks may come from the loss of infrastructure resulting in exposure to raw sewage, loss of local drinking water treatment capacity, and the inability to maintain refrigeration for food or medical supplies. Care should be taken by individuals to maintain sanitary conditions with an emphasis on hand washing and careful food preparation.

In a disaster situation, it may be several days before outside assistance arrives. Therefore, if you find yourself in a situation where you need to deal with human remains – the following information may be helpful:

- Notify local law enforcement
- Human remains may contain blood-borne viruses such as hepatitis B and C and HIV as well as bacterial viruses. Persons who directly handle remains may risk the exposure to such viruses or bacteria.
- Protect your face from splashes of body fluids and fecal material. A plastic face shield or a combination of safety goggles and a surgical mask would be appropriate.
- Protect your hands from direct contact with body fluids by wearing latex gloves. In a situation where you may be injured from environmental debris, you may want to wear study work gloves with the latex gloves underneath.
- If available, use body bags to contain remains. If you do not have access to body bags, you can use old plastic shower curtains or plastic sheeting to wrap the remains. Bodies will begin to seep within several hours of death especially in warm weather – you will want to wrap the body as soon as possible after death.
- If refrigeration or a cold area is available, it can reduce the rate of decay and facilitate identification. If you have an unheated room or enclosed porch, you may want to place the wrapped remains there as a temporary morgue. If that is unavailable, you may want to place the remains in a bathtub and then seal the bathroom until you can make other arrangements.
- The sight and smell of decay is unpleasant. Disaster recovery workers have found that keeping a strong mint or cinnamon flavored candy in their mouths can be helpful. In extreme situations, workers will often pack their noses with a menthol salve to avoid the smells of decaying remains.
- Identification is very important in a disaster situation. If you know the identity of the remains, use a permanent marker and write this information on the plastic wrapping. Another option would be to write the information on a piece of paper, enclose the paper in a plastic bag and then tape the bag to the remains. If possible, include the following information:
    - Primary care physician and/or attending physician
    - Date of Birth and Social Security number
    - Medical and life insurance information
    - Work related information (company, position/title, length of service ect...)
    - Next of kin contact/relatives
- Wash hands with soap and water or an alcohol-based hand cleaner immediately after you remove your gloves.
- In addition to guarding your physical safety, realize that your mental safety is important too. You may experience extreme psychological trauma from your experiences. Realize that this is a normal response and get help/support as soon as possible.
- Burial or cremation should take place as soon as it is feasible.

Returning Home

Returning home can be both physically and mentally challenging. Above all, use caution.

General tips:

- Keep a battery-powered radio with you so you can listen for emergency updates and news reports.
- Use a battery-powered flash light to inspect a damaged home. Note: The flashlight should be turned on outside before entering—the battery may produce a spark that could ignite leaking gas, if present.
- Watch out for animals, especially poisonous snakes. Use a stick to poke through debris.
- Use the phone only to report life-threatening emergencies.
- Stay off the streets. If you must go out, watch for fallen objects; downed electrical wires; and weakened walls, bridges, roads, and sidewalks.

Before Entering Your Home
Walk carefully around the outside and check for loose power lines, gas leaks, and structural damage. If you have any doubts about safety, have your residence inspected by a qualified building inspector or structural engineer before entering.

Do not enter if:
- You smell gas.
- Floodwaters remain around the building.
- Your home was damaged by fire and the authorities have not declared it safe.

Going Inside Your Home
When you go inside your home, there are certain things you should and should not do. Enter the home carefully and check for damage. Be aware of loose boards and slippery floors. The following items are other things to check inside your home:
- Natural gas. If you smell gas or hear a hissing or blowing sound, open a window and leave immediately. Turn off the main gas valve from the outside, if you can. Call the gas company from a neighbor's residence. If you shut off the gas supply at the main valve, you will need a professional to turn it back on. Do not smoke or use oil, gas lanterns, candles, or torches for lighting inside a damaged home until you are sure there is no leaking gas or other flammable materials present.
- Sparks, broken, or frayed wires. Check the electrical system unless you are wet, standing in water, or unsure of your safety. If possible, turn off the electricity at the main fuse box or circuit breaker. If the situation is unsafe, leave the building and call for help. Do not turn on the lights until you are sure they're safe to use. You may want to have an electrician inspect your wiring.
- Roof, foundation, and chimney cracks. If it looks like the building may collapse, leave immediately.
- Appliances. If appliances are wet, turn off the electricity at the main fuse box or circuit breaker. Then, unplug appliances and let them dry out. Have appliances checked by a professional before using them again. Also, have the electrical system checked by an electrician before turning the power back on.
- Water and sewage systems. If pipes are damaged, turn off the main water valve. Check with local authorities before using any water; the water could be contaminated. Pump out wells and have the water tested by authorities before drinking. Do not flush toilets until you know that sewage lines are intact.
- Food and other supplies. Throw out all food and other supplies that you suspect may have become contaminated or come into contact with floodwater.
- Your basement. If your basement has flooded, pump it out gradually (about one third of the water per day) to avoid damage. The walls may collapse and the floor may buckle if the basement is pumped out while the surrounding ground is still waterlogged.
- Open cabinets. Be alert for objects that may fall.
- Clean up household chemical spills. Disinfect items that may have been contaminated by raw sewage, bacteria, or chemicals. Also clean salvageable items.
- Call your insurance agent. Take pictures of damages. Keep good records of repair and cleaning costs.

Beware of Wildlife and Other Animals
Disaster and life threatening situations will exacerbate the unpredictable nature of wild animals. To protect yourself and your family, learn how to deal with wildlife.

Guidelines
- Do not approach or attempt to help an injured or stranded animal. Call your local animal control office or wildlife resource office.
- Do not corner wild animals or try to rescue them. Wild animals will likely feel threatened and may endanger themselves by dashing off into floodwaters, fire, and so forth.

- Do not approach wild animals that have taken refuge in your home. Wild animals such as snakes, opossums, and raccoons often seek refuge from floodwaters on upper levels of homes and have been known to remain after water recedes. If you encounter animals in this situation, open a window or provide another escape route and the animal will likely leave on its own. Do not attempt to capture or handle the animal. Should the animal stay, call your local animal control office or wildlife resource office.
- Do not attempt to move a dead animal. Animal carcasses can present serious health risks. Contact your local emergency management office or health department for help and instructions.
- If bitten by an animal, seek immediate medical attention.

Disaster Assistance
Throughout the recovery period, it is important to monitor local radio or television reports and other media sources for information about where to get emergency housing, food, first aid, clothing, and financial assistance. The following section provides general information about the kinds of assistance that may be available.

Direct Assistance
Direct assistance to individuals and families may come from any number of organizations, including:
- American Red Cross.
- Salvation Army.
- Other volunteer organizations.

These organizations provide food, shelter, supplies and assist in clean-up efforts.

The Federal Role
In the most severe disasters, the federal government is also called in to help individuals and families with temporary housing, counseling (for post-disaster trauma), low-interest loans and grants, and other assistance. The federal government also has programs that help small businesses and farmers.

Most federal assistance becomes available when the President of the United States declares a "Major Disaster" for the affected area at the request of a state governor. FEMA will provide information through the media and community outreach about federal assistance and how to apply.

Coping with Disasters
The emotional toll that disaster brings can sometimes be even more devastating than the financial strains of damage and loss of home, business, or personal property.

Understand Disaster Events
- It is normal to feel anxious about your own safety and that of your family and close friends.
- Profound sadness, grief, and anger are normal reactions to an abnormal event.
- Acknowledging your feelings helps you recover.
- Focusing on your strengths and abilities helps you heal.
- Accepting help from community programs and resources is healthy.
- Everyone has different needs and different ways of coping.
- It is common to want to strike back at people who have caused great pain.

Children and older adults are of special concern in the aftermath of disasters. Even individuals who experience a disaster "second hand" through exposure to extensive media coverage can be affected.
Contact local faith-based organizations, voluntary agencies, or professional counselors for counseling. Additionally, FEMA and state and local governments of the affected area may provide crisis counseling assistance.

Recognize Signs of Disaster Related Stress
When adults have the following signs, they might need crisis counseling or stress management assistance:

- Difficulty communicating thoughts.
- Difficulty sleeping.
- Difficulty maintaining balance in their lives.
- Low threshold of frustration.
- Increased use of drugs/alcohol.
- Limited attention span.
- Poor work performance.
- Headaches/stomach problems.
- Tunnel vision/muffled hearing.
- Colds or flu-like symptoms.
- Disorientation or confusion.
- Difficulty concentrating.
- Reluctance to leave home.
- Depression, sadness.
- Feelings of hopelessness.
- Mood-swings and easy bouts of crying.
- Overwhelming guilt and self-doubt.
- Fear of crowds, strangers, or being alone.

Ease Disaster Related Stress

The following are ways to ease disaster-related stress:

- Talk with someone about your feelings—anger, sorrow, and other emotions—even though it may be difficult.
- Seek help from professional counselors who deal with post-disaster stress.
- Do not hold yourself responsible for the disastrous event or be frustrated because you feel you cannot help directly in the rescue work.
- Take steps to promote your own physical and emotional healing by healthy eating, rest, exercise, relaxation, and meditation.
- Maintain a normal family and daily routine, limiting demanding responsibilities on yourself and your family.
- Spend time with family and friends.
- Participate in memorials.
- Use existing support groups of family, friends, and religious institutions.
- Ensure you are ready for future events by restocking your disaster supply kits and updating your family disaster plan. Performing these positive actions can be comforting.

Helping Children Cope with Disasters

Disasters can leave children feeling frightened, confused, and insecure. Whether a child has personally experienced trauma, has merely seen the event on television, or has heard it discussed by adults, it is important for parents and teachers to be informed and ready to help if reactions to stress begin to occur.

Children may respond to disaster by demonstrating fears, sadness, or behavioral problems. Younger children may return to earlier behavior patterns, such as bedwetting, sleep problems, and separation anxiety. Older children may also display some anger, aggression, school problems, or withdrawal. Some children who have only indirect contact with the disaster but witness it on television may develop distress.

Who Is At Risk?

For many children, reactions to disasters are brief and represent normal reactions to “abnormal events.” A smaller number of children can be at risk for more enduring psychological distress as a function of three major risk factors:

- Direct exposure to the disaster, such as being evacuated, observing injuries or death of others, or experiencing injury along with fearing one's life is in danger
- Loss/grief: This relates to the death or serious injury of family or friends
- On-going stress from the secondary effects of disaster, such as temporarily living elsewhere, loss of friends and social networks, loss of personal property, parental unemployment, and costs incurred during recovery to return the family to pre-disaster life and living conditions.

What Creates Vulnerabilities in Children?
In most cases, depending on the risk factors above, distressing responses are temporary. In the absence of severe threat to life, injury, loss of loved ones, or secondary problems such as loss of home, moves, etc., symptoms usually diminish over time. For those that were directly exposed to the disaster, reminders of the disaster such as high winds, smoke, cloudy skies, sirens, or other reminders of the disaster may cause upsetting feelings to return. Having a prior history of some type of traumatic event or severe stress may contribute to these feelings.

A child's coping with disaster or an emergency is often tied to the way parents cope. They can detect adults' fears and sadness. Parents and adults can make disasters less traumatic for children by taking steps to manage their own feelings and plans for coping. Parents are almost always the best source of support for children in disasters. One way to establish a sense of control and to build confidence in children before a disaster is to engage and involve them in preparing a family disaster plan. After a disaster, children can contribute to a family recovery plan.

A Child's Reaction to Disaster by Age
Below are common reactions in children after a disaster or traumatic event.

Birth through 2 years. When children are pre-verbal and experience a trauma, they do not have the words to describe the event or their feelings. However, they can retain memories of particular sights, sounds, or smells. Infants may react to trauma by being irritable, crying more than usual, or wanting to be held and cuddled. The biggest influence on children of this age is how their parents cope. As children get older, their play may involve acting out elements of the traumatic event that occurred several years in the past and was seemingly forgotten.

Preschool—3 through 6 years. Preschool children often feel helpless and powerless in the face of an overwhelming event. Because of their age and small size, they lack the ability to protect themselves or others. As a result, they feel intense fear and insecurity about being separated from caregivers. Preschoolers cannot grasp the concept of permanent loss. They can see consequences as being reversible or permanent. In the weeks following a traumatic event, preschoolers' play activities may reenact the incident or the disaster over and over again.

School age—7 through 10 years. The school-age child has the ability to understand the permanence of loss. Some children become intensely preoccupied with the details of a traumatic event and want to talk about it continually. This preoccupation can interfere with the child's concentration at school and academic performance may decline. At school, children may hear inaccurate information from peers. They may display a wide range of reactions—sadness, generalized fear, or specific fears of the disaster happening again, guilt over action or inaction during the disaster, anger that the event was not prevented, or fantasies of playing rescuer.

Pre-adolescence to adolescence—11 through 18 years. As children grow older, they develop a more sophisticated understanding of the disaster event. Their responses are more similar to adults. Teenagers may become involved in dangerous, risk-taking behaviors, such as reckless driving, or alcohol or drug use. Others can become fearful of leaving home and avoid previous levels of activities. Much of adolescence is focused on moving out into the world. After a trauma, the view of the world can seem more dangerous and unsafe. A teenager may feel overwhelmed by intense emotions and yet feel unable to discuss them with others.

Meeting the Child's Emotional Needs
Children's reactions are influenced by the behavior, thoughts, and feelings of adults. Adults should encourage children and adolescents to share their thoughts and feelings about the incident. Clarify misunderstandings about risk and danger by listening to children's concerns and answering questions. Maintain a sense of calm by validating children's concerns and perceptions and with discussion of concrete plans for safety.

Listen to what the child is saying. If a young child is asking questions about the event, answer them simply without the elaboration needed for an older child or adult. Some children are comforted by knowing more or less information than others; decide what level of information your particular child needs. If a child has difficulty expressing feelings, allow the child to draw a picture or tell a story of what happened.

Try to understand what is causing anxieties and fears. Be aware that following a disaster, children are most afraid that:

- The event will happen again.
- Someone close to them will be killed or injured.
- They will be left alone or separated from the family.

Reassuring Children after a Disaster
Suggestions to help reassure children include the following:

- Personal contact is reassuring. Hug and touch your children.
- Calmly provide factual information about the recent disaster and current plans for insuring their safety along with recovery plans.
- Encourage your children to talk about their feelings.
- Spend extra time with your children such as at bedtime.
- Re-establish your daily routine for work, school, play, meals, and rest.
- Involve your children by giving them specific chores to help them feel they are helping to restore family and community life.
- Praise and recognize responsible behavior.
- Understand that your children will have a range of reactions to disasters.
- Encourage your children to help update your a family disaster plan.

If you have tried to create a reassuring environment by following the steps above, but your child continues to exhibit stress, if the reactions worsen over time, or if they cause interference with daily behavior at school, at home, or with other relationships, it may be appropriate to talk to a professional. You can get professional help from the child's primary care physician, a mental health provider specializing in children's needs, or a member of the clergy.

Monitor and Limit Your Family's Exposure to the Media
News coverage related to a disaster may elicit fear and confusion and arouse anxiety in children. This is particularly true for large-scale disasters or a terrorist event where significant property damage and loss of life has occurred. Particularly for younger children, repeated images of an event may cause them to believe the event is recurring over and over.

If parents allow children to watch television or use the Internet where images or news about the disaster are shown, parents should be with them to encourage communication and provide explanations. This may also include parent's monitoring and appropriately limiting their own exposure to anxiety-provoking information.

Use Support Networks
Parents help their children when they take steps to understand and manage their own feelings and ways of coping. They can do this by building and using social support systems of family, friends, community organizations and agencies, faith-based institutions, or other resources that work for that family. Parents can build their own unique social support systems so that in an emergency situation or when a disaster strikes, they

can be supported and helped to manage their reactions. As a result, parents will be more available to their children and better able to support them. Parents are almost always the best source of support for children in difficult times. But to support their children, parents need to attend to their own needs and have a plan for their own support.

Preparing for disaster helps everyone in the family accept the fact that disasters do happen, and provides an opportunity to identify and collect the resources needed to meet basic needs after disaster. Preparation helps; when people feel prepared, they cope better and so do children.

Helping Others

The compassion and generosity of the American people is never more evident than after a disaster. People want to help. Here are some general guidelines on helping others after a disaster:

- Volunteer! Check with local organizations or listen to local news reports for information about where volunteers are needed. **Note**: Until volunteers are specifically requested, stay away from disaster areas.
- Bring your own food, water, and emergency supplies to a disaster area if you are needed there. This is especially important in cases where a large area has been affected and emergency items are in short supply.
- Give a check or money order to a recognized disaster relief organization. These groups are organized to process checks, purchase what is needed, and get it to the people who need it most.
- Do not drop off food, clothing, or any other item to a government agency or disaster relief organization unless a particular item has been requested. Normally, these organizations do not have the resources to sort through the donated items.
- Donate a quantity of a given item or class of items (such as nonperishable food) rather than a mix of different items. Determine where your donation is going, how it's going to get there, who is going to unload it, and how it is going to be distributed. Without sufficient planning, much needed supplies will be left unused.