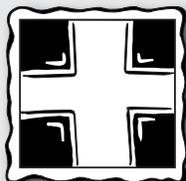


Don't Be Scared— Be Prepared!

Living with a **VOLCANO** in Your Backyard
MOUNT RAINIER



Grade Level: 2–12

Learner Objectives:

Students will:

- Recognize the four steps for greater preparedness
- Possess materials that help prepare students, their class, and family for natural disasters

Setting: Classroom

Timeframe:

Emergency Contact Paper: Homework Assignment—20 minutes class

Home Treasure Hunt for Disaster Kit Supplies: Homework Assignment—30 minute class

Assemble a Classroom Emergency Kit: Homework Assignment—50 minutes class

Develop a Safety Plan for Your School: Homework Assignment—50 minutes class



Living with a Volcano in Your Backyard— An Educator's Guide with Emphasis on Mount Rainier

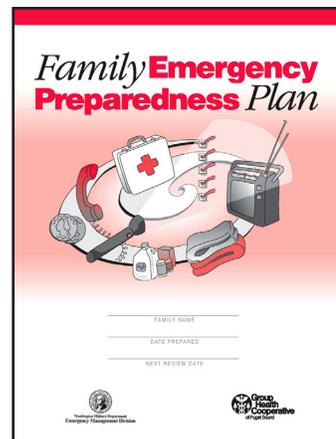
Prepared in collaboration with the National Park Service

U.S. Department of the Interior
U.S. Geological Survey

General Information Product 19

Overview

Students learn simple steps for developing preparedness by performing basic tasks with their class and family for natural disasters.



Materials:

Visualizing Topography

- “Family Emergency Preparedness Plan” (included)
- Aid from family members for development of contact list
- Literature distributed by American Red Cross and Emergency Management Departments, student contact information. (optional)

Home Treasure Hunt for Disaster Kit Supplies

- “Family Emergency Preparedness Plan” (included)
- Home resources for Family Disaster Supplies Kit

Assemble a Classroom Emergency Kit

- “Family Emergency Preparedness Plan” (included)
- Materials for emergency kit

1

Don't Be Scared—Be Prepared



*Develop a Safety Plan for Your School
Assemble a Classroom Emergency Kit*

- “Family Emergency Preparedness Plan” (included)
- Existing school safety plan

Skills: Interpret, apply, participate

Vocabulary: Cascadia Subduction Zone, Disaster Supplies Kit, Emergency Contact Information, Family Emergency Preparedness Plan, volcanic hazards

Benchmarks:

See benchmarks in Introduction.

Teacher Background

Residents and visitors to the Pacific Northwest are at risk from a variety of potential natural processes—windstorms, floods, earthquakes, tsunamis and volcanic phenomena. Emergency officials recommend that families prepare to “shelter in place,” meaning reliance on home-stored supplies of food, water and medicine for a minimum of 72 hours. They recommend that each family prepare an emergency contact list and have knowledge of evacuation routes.

When families are adequately prepared, emergency officials can focus their efforts on larger issues of community recovery, such as performing necessary evacuations, coordinating emergency workers, and keeping transportation facilities and utilities intact. In this educator guide, we’re concerned primarily with volcanic hazards. However, if you are prepared for volcanic unrest with the procedures listed below, you will be ready for other natural hazard emergencies, as well.

In the accompanying document, *Family Emergency Preparedness Plan*, officials recommend the following four steps toward preparedness:

- ◆ Find out what disasters could happen to you.
- ◆ Create a disaster plan.
- ◆ Put your plan into action.
- ◆ Practice and maintain your plan.

How do I know if I am at risk from volcanic hazards?

Hazard assessments have been assembled for many Cascade volcanoes. For an in-depth discussion of volcanic hazards and a hazards map of Mount Rainier, visit the activity **The Next Eruption of Mount Rainier**. Find references for volcano hazard assessments for other volcanoes on the **Internet Resources Page**.



Studies by emergency managers show that information about preparedness that is discussed in the classroom does not always reach home and prompt improved home preparedness. Teacher assignments that require family discussion enhance family preparedness. In the words of emergency managers, development of an EMERGENCY CONTACT LIST that involves all family members is the single most valuable preparedness homework that a teacher can assign.

Procedure

Preparing Your Students

Write a journal entry about a volcanic eruption to assess knowledge of volcanic processes and terms.

1. Discuss the reasons for preparedness with your students, as noted in the teacher background above. Inquire about students' experiences with the listed natural hazards. Discuss the hazards that affect either your community or another nearby. If you have questions about hazards in your community, contact your local emergency-management agency.
2. Motivate students' thinking by asking them a series of questions about their present state of preparedness. For example, ask them to make a list of emergency measures that would be required if they could not leave their home for 72 hours. Ask how they would contact their family if they were unable to join or phone them at home. What items would they choose to take with them if they had reason to evacuate their home? Listen to students' perceptions of current preparedness in their homes.
3. Conduct Procedure *A* (below) and one or more of the other procedures, *B* through *D* listed below.

A. Emergency Contact Information

Students work with their family to prepare a list of family emergency contacts. Use the “Emergency Telephone Numbers” form in the accompanying “Family Emergency Preparedness Plan” as a guide (page 25 of the document). In the Pacific Northwest, emergency managers recommend that out-of-area contacts be chosen from areas outside the Cascadia Subduction Zone, the geologically active region that stretches from Vancouver, British Columbia, to just north of San Francisco, California, and from the Pacific coast to central Washington, Oregon, and California. After checking for completeness, make photocopies of the form—one for the student and the other for the family. Students should keep this list, or a version at reduced size (an index card works well) in their school folder or backpack.

B. Home Treasure Hunt for Disaster Kit Supplies

Using the Emergency Preparedness Checklist as a guide, go on a treasure hunt in your home to accumulate items for your family disaster supplies kit. Refer to recommendations on pages five through seven of the accompanying Family Emergency Preparedness Plan. Check off items you find and make a list of those your family needs to obtain to complete your emergency preparedness kit. Review your list with your family and prepare a plan to complete your kit. Also, review volcano-preparedness measures in the accompanying

Don't Be Scared—Be Prepared-continued . . .

list entitled Volcanic Ashfall—How to be Prepared for an Ashfall and determine your family's preparedness for a volcanic eruption. Place a copy of your community's volcano evacuation plan (if one exists) with your emergency plan. If these items are unavailable, contact the American Red Cross or your local emergency management agency to obtain copies or similar literature. Facilitate a class discussion about students' findings on their home treasure hunt to conclude the activity.

C. Assemble a Classroom Emergency Kit

Become familiar with your classroom's emergency preparedness kit and procedures that you will follow during a hazardous event, such as an earthquake, a volcanic eruption, or lahar. Discuss the value of a NOAA Weather Radio.

D. Develop a Safety Plan for Your School

Contact a member of a local emergency management agency and invite them to your classroom. Ask them how they would advise you to respond during a natural hazards emergency such as a windstorm, earthquake, flood, or volcanic eruption. Invite them to visit your school and prepare a list of questions to ask prior to their visit. Finally, develop a plan for how your class will respond to volcanic eruptions.

Adaptations

- ◆ Volcano hazard workgroups have developed plans of action for other Cascade Range volcanoes. Perform an Internet search for them. In Washington, the plans are found on the Emergency Management Division Web site.
- ◆ Direct younger students to draw a picture of a volcanic eruption and label the drawing.

Extensions

- ◆ Students and teachers can prepare wallet-sized emergency contact cards to be kept in wallets and backpacks, on in the inside jacket of book covers.
- ◆ Use library or internet resources to learn about a natural disaster and how people's preparedness, (or lack of it), helped or hindered their recovery from the event.
- ◆ Create a poster that encourages others to be prepared for natural disasters. Use paint, crayons, computer, etc. to produce your poster.

Assessment

After completing this activity, students should be able to develop their own emergency contact list, disaster supplies kit, and a disaster plan. They should have an enhanced awareness of the procedures to follow during an emergency at their school. Assess each student's ability to record information in a practical form and then recall it.

References

- Driedger, C., and Scott, K., 2002, Mount Rainier—Learning to live with volcanic risk: U.S. Geological Survey Fact Sheet 034–02, 4 p.
- Dent-Cleveland, L., 2003, The beautiful mountain in the sky—How to be safe if a lahar flows down the mountain: Washington Military Department-Emergency Management Division, Elementary Edition K-6 Booklet, 24 p.
- Federal Emergency Management Agency and American Red Cross, 1993, Helping children cope with disaster: FEMA L-196, ARC 4499, 4 p.
- Harris, S.L., 2005, Fire mountains of the west: The Cascade and Mono Lake volcanoes: Missoula, Mont., Mountain Press Publishing Company, 454 p.
- Hoblitt, R.P., Walder, J.S., Driedger, C.L., Scott, K.M., Pringle, P.T., and Vallance, J.W., 1995, Volcano hazards from Mount Rainier, Washington—1998 volcano-hazards assessment report: U.S. Geological Survey, Open-File Report 98–428, 11 p.
- Kennedi, C.A., Brantley, S.R., Hendley J.W., II, Stauffer, P.H., 2000, Volcanic ash fall—a “hard rain” of abrasive particles: U.S. Geological Survey Fact-Sheet 027–00 (revised April 2002), 2 p.
- Myers, B., Brantley, S.R., Stauffer, P.H., and Hendley J.W., II, 1998, What are volcano hazards? (revised April 2002): U.S. Geological Survey Fact Sheet 002–97, 2 p.
- Mount Rainier Volcano Hazards Work Group, 1999, Mount Rainier volcano hazards response plan: Pierce County Department of Emergency Services, 103 p.
- Prager, E.J., and Woodman, N., 2001, Volcano!: Washington, D.C., National Geographic Society, 32 p.
- Washington Emergency Management Division, Group Health Cooperative of Puget Sound, Seattle-King County Chapter of The American Red Cross, 1996, Family Emergency Preparedness Plan: Washington Emergency Management Division, 25 p. (Included with this activity)

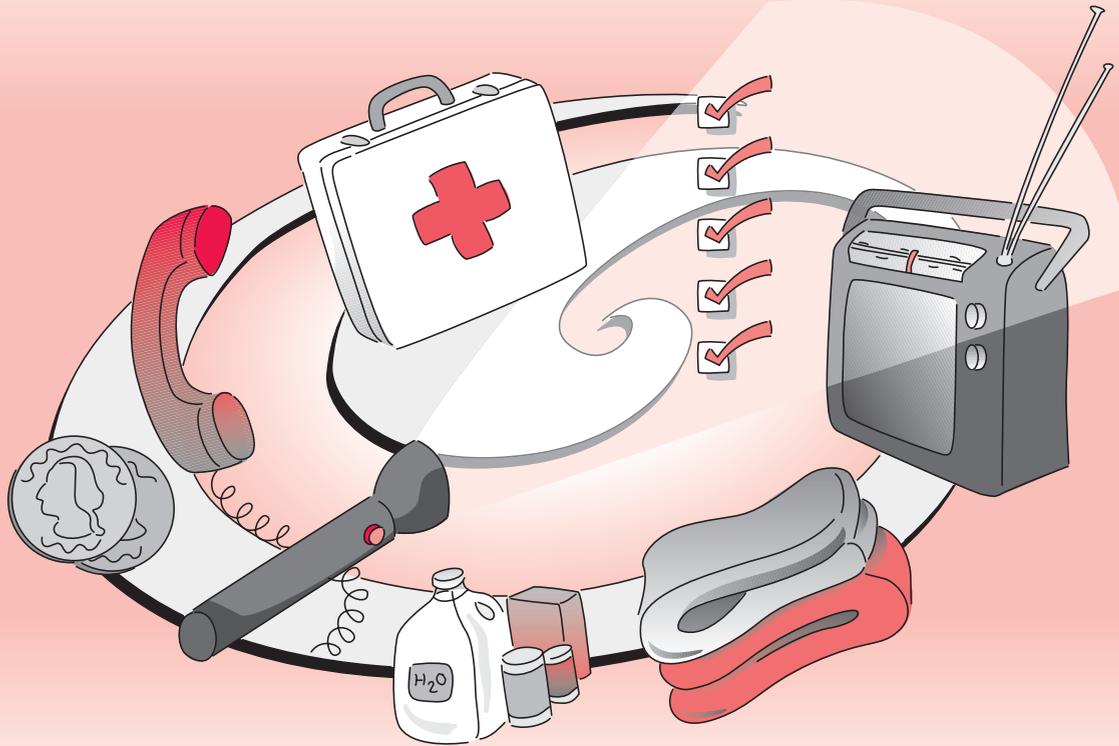
Don't Be Scared—Be Prepared-continued . . .

Washington Military Department, Emergency Management Division, 2003, Volcanic ash fall—how to be prepared for an ash fall: Washington Military Department, Emergency Management Division, 3-page tri-fold.



Refer to **Internet Resources Page** for a list of resources available as a supplement to this activity.

Family **Emergency** **Preparedness** *Plan*



FAMILY NAME

DATE PREPARED

NEXT REVIEW DATE



Washington Military Department
Emergency Management Division



Family **Emergency** **Preparedness** *Plan*

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Credits

The Family Emergency Preparedness Plan was jointly developed by the Office of Emergency Preparedness at Group Health Cooperative of Puget Sound, the Seattle-King County Chapter of The American Red Cross, and the Washington State Military Department, Emergency Management Division.

Why Plan?

Communities throughout the Pacific Northwest are subject to a number of potential natural disasters such as fires, flooding, severe storms, earthquakes, dam failures, volcanic eruptions and landslides. While we all hope that such occurrences never happen, it has been shown time and time again that being prepared for disasters is prudent. Emergency services and government agencies may not be able to respond to your needs immediately. Their buildings, equipment, personnel, communications, and mobility may be severely hampered by the event. They will be overwhelmed. Experts tell us to plan to be on our own for a minimum of 3 days.

We cannot stop these disasters from occurring, but we can limit their impact on us and those we love. Contrary to what you may think, the chances of being killed or injured in a disaster are very low. More likely you will be unable to live normally in your home. It may be damaged and let in the weather, it may be cold with no heat, you may have no power or water, or it may not even be safe for you to go back into. In short, disasters make life very uncomfortable. Proper planning and preparation will help you and your family be more comfortable in the event that your home is damaged, or you can't get back into it. Think of it as a "quality of life" issue. The most important concept in developing a **family emergency preparedness plan** is communication. Every member of the family needs to be involved so that when disaster strikes, everyone will know what to do. How well you manage the aftermath of disaster depends a great deal on your level of preparedness when disaster strikes.

In the following pages you will find a step-by-step guide to disaster planning along with other essential information you will need in building a comprehensive family emergency preparedness plan. Be sure to involve all the members of your household when developing your preparedness plan. A plan will only work when everyone knows about it and agrees to operate within its guidelines.

Once your family is prepared, it is time to look to your neighbors. In times of disaster your neighbors will probably be the first ones available to come to your aid. Find out before disaster strikes what resources you share and how you can work together for the good of one another. Good luck! And don't forget to review your plan annually.

Prepare... *Because you care*

Four Steps to Disaster Planning

1 Find Out What Disasters Could Happen To You

- Ask what types of disasters are most likely to happen in your area.

- Learn about your community's warning signals: what they sound like and what you should do when you hear them. Also, learn which radio stations will provide emergency information for your area.

- Ask about animal care after a disaster.

- Find out how to help elderly or disabled persons, if needed.

- Find out about the disaster plan at your workplace, your children's school or childcare center and other places your family frequents.

2 Create A Disaster Plan

Meet with your family and discuss why you need to prepare for disaster. Plan to share responsibilities and work together as a team.

- Discuss the types of disasters that are most likely to happen. Explain what to do in each case.

- Discuss what to do in an evacuation. Plan to take care of your pets.

- Ask an out-of-area friend or relative to be your “family contact.” It’s often easier to call long distance following a disaster. (See pg. 25)

- Pick two places to meet:

1. Right outside your home in case of fire.
2. Outside your neighborhood in case you can’t return home. Everyone must know the address and phone number.

Address _____

Phone Number _____

3 Put Your Plan Into Action

- Post emergency telephone numbers by phones.
- Teach children how and when to call 911 or your local emergency medical services number for emergency help.
- Show each family member how and when to turn off the water, gas and electricity at the main switches.
- Check for adequate insurance coverage.
- Install an ABC type fire extinguisher in your home, teach each family member to use it, and show them where it is kept.
- Install smoke detectors on each level of your home, especially near bedrooms.
- Conduct a home hazard hunt (see page 8).
- Stock emergency supplies and assemble a disaster supplies kit (see page 5).
- Take a first aid and CPR class.
- Determine the best escape routes from your home. Find two ways out of each room. (Complete escape diagram on page 9).
- Find safe spots in your home for each type of disaster.

4 Practice and Maintain Your Plan

Review your plans every six months so everyone remembers what to do.

Next review: _____

Conduct fire and emergency evacuation drills.

Date of last drill: _____

Date of next drill: _____

Test and recharge your fire extinguisher(s) according to manufacturer's instructions.

Date inspected: _____

Next inspection due: _____

Test your smoke detectors monthly. Change the batteries every six months and clean the dust from the detector each time you change batteries.

Date of last battery change: _____

Next battery change due: _____

Replace stored water and food every six months.

Date of last rotation: _____

Date of next rotation: _____

HINT: When you set your clocks in the fall and the spring, also replace your stored water and food, change your smoke detector batteries, and do other things necessary to maintain your plan.

Disaster Supplies Kit

There are six basics you should stock in your home: water, food, first aid, clothing and bedding, tools, and emergency supplies and special items. Keep the items you will most likely need during an evacuation in an easy-to-carry container such as a large, covered trash container, camping backpack or duffle bag. Keep a smaller version of the disaster supplies kit in the trunk of your car.



Water

- Store one gallon of water per person per day
- Have purifying agents available

See page 24 for purification information.

Food

Store at least a three day supply of non-perishable food for each person. Select foods that require no refrigeration, cooking or preparation. Select food items that are compact and lightweight and rotate the food supply every six months.

- | | |
|---|--|
| <input type="checkbox"/> Ready to eat canned meats, fruits and vegetables | <input type="checkbox"/> Juices – canned, powdered or crystallized |
| <input type="checkbox"/> Soups – bouillon cubes or dried soups in a cup | <input type="checkbox"/> Smoked or dried meats such as beef jerky |
| <input type="checkbox"/> Milk – powdered or canned | <input type="checkbox"/> Vitamins |
| <input type="checkbox"/> Stress foods – sugar cookies, hard candy | <input type="checkbox"/> High energy foods – peanut butter, nuts, trail mix, etc |
| <input type="checkbox"/> Staples – sugar, salt, pepper | |

Non-Prescription Medications

- | | |
|---|--|
| <input type="checkbox"/> Aspirin or non-aspirin pain reliever | <input type="checkbox"/> Anti-diarrhea medication |
| <input type="checkbox"/> Antacid | <input type="checkbox"/> Emetic (to induce vomiting) |
| <input type="checkbox"/> Laxative | <input type="checkbox"/> Eye wash |
| <input type="checkbox"/> Rubbing alcohol | <input type="checkbox"/> Antiseptic or hydrogen peroxide |
| <input type="checkbox"/> Activated charcoal | |

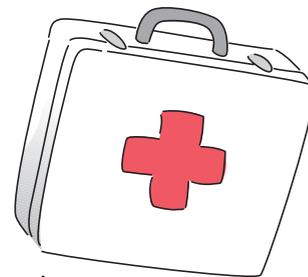
How to store water

Store your water in thoroughly washed plastic, fiberglass or enamel-lined metal containers. Never use a container that has held toxic substances. Plastic containers, such as soft drink bottles, are the best. You can also purchase food-grade plastic buckets or drums.

Seal water containers tightly, label them and store in a cool, dark place. Replace every six months.

First Aid Kit

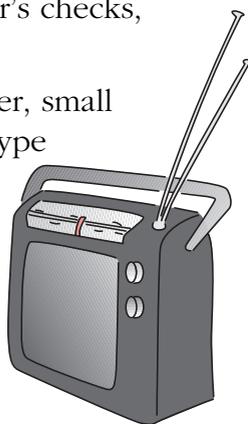
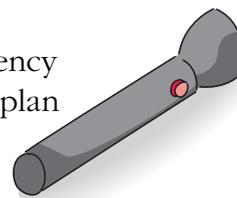
You should have two first aid kits — one for your home and the other for your car. The kit should include:



- | | |
|--|--|
| <input type="checkbox"/> Sterile adhesive bandages in assorted sizes | <input type="checkbox"/> 2-inch sterile gauze pads (8-12) |
| <input type="checkbox"/> 3-inch sterile gauze pads (8-12) | <input type="checkbox"/> Hypoallergenic adhesive tape |
| <input type="checkbox"/> Triangular bandages (3) | <input type="checkbox"/> 2 & 3-inch sterile roller bandages (3 rolls each) |
| <input type="checkbox"/> Scissors | <input type="checkbox"/> Tweezers |
| <input type="checkbox"/> Needle | <input type="checkbox"/> Safety razor blade |
| <input type="checkbox"/> Bar of soap | <input type="checkbox"/> Moistened towelettes (8-10 packages) |
| <input type="checkbox"/> Antiseptic spray | <input type="checkbox"/> Non-breakable thermometer |
| <input type="checkbox"/> Tongue blades and wooden applicator sticks | <input type="checkbox"/> Tube of petroleum jelly or other lubricant |
| <input type="checkbox"/> Assorted sizes of safety pins | <input type="checkbox"/> Cleansing agent – soap |
| <input type="checkbox"/> Latex gloves | |

Tools and Supplies

- | | |
|--|---|
| <input type="checkbox"/> Mess kits, or paper cups, plates and plastic utensils | <input type="checkbox"/> Family emergency preparedness plan |
| <input type="checkbox"/> Battery operated radio and extra batteries | <input type="checkbox"/> Flashlight and extra batteries |
| <input type="checkbox"/> Cash or traveler's checks, change | <input type="checkbox"/> Non-electric can opener, utility knife |
| <input type="checkbox"/> Fire extinguisher, small canister, ABC type | <input type="checkbox"/> Tube tent |
| <input type="checkbox"/> Pliers | <input type="checkbox"/> Tape |
| <input type="checkbox"/> Compass | <input type="checkbox"/> Matches in a waterproof container |
| <input type="checkbox"/> Aluminum foil | <input type="checkbox"/> Plastic storage containers |
| <input type="checkbox"/> Signal flare | <input type="checkbox"/> Paper, pencil |
| <input type="checkbox"/> Needles, thread | <input type="checkbox"/> Medicine dropper |
| <input type="checkbox"/> Shut-off wrench for gas and water | <input type="checkbox"/> Whistle |
| <input type="checkbox"/> Plastic sheeting | <input type="checkbox"/> Dust mask and work gloves |



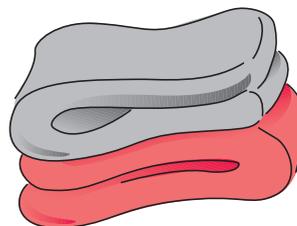
Sanitation

- Toilet paper, towelettes
- Soap, liquid detergent
- Feminine supplies
- Personal hygiene items
- Plastic garbage bags, ties
- Small shovel, to dig expedient latrine
- Plastic bucket with tight lid
- Disinfectant
- Household chlorine bleach

Clothing and Bedding

Include at least one complete change of clothing and footwear per person

- Sturdy shoes or work boots
- Rain gear
- Blankets or sleeping bags
- Hat and gloves
- Thermal underwear
- Sunglasses



Special Items

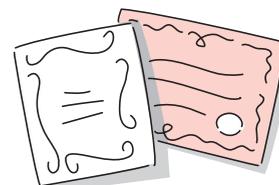
Remember family members with special needs such as infants, elderly, or disabled individuals.

For Baby

- Formula
- Diapers
- Bottles
- Powdered milk
- Medications

For Adults

- Heart and high blood pressure medications
- Insulin
- Prescription drugs
- Denture needs
- Contact lenses and supplies
- Extra eye glasses
- Entertainment** — games for children; books for adults.



Important Family Documents — Keep these records in a waterproof, portable container.

- Will, insurance policies, contracts, deeds, stocks and bonds
- Passports, social security cards, immunization records
- Bank account numbers
- Credit card account numbers and companies
- Inventory of valuable household goods, important telephone numbers
- Family records (birth, marriage, death certificates)

Hazard Hunt

Conduct a hazard hunt to identify hazards in your home. State the action required to correct each problem. When the hazard has been corrected, put a check mark in the box.

Water heater _____
(action required)

Top heavy free standing furniture _____
(action required)

Heavy or breakable objects _____
(action required)

Electronic equipment/appliances _____
(action required)

Hanging plants _____
(action required)

Mirrors/heavy pictures _____
(action required)

Unsecured cupboard doors _____
(action required)

Poisons, toxics and solvents _____
(action required)

House foundation _____
(action required)

Chimney and roof _____
(action required)

Utilities (flexible gas connections, electrical wiring, shut off valves/switches)

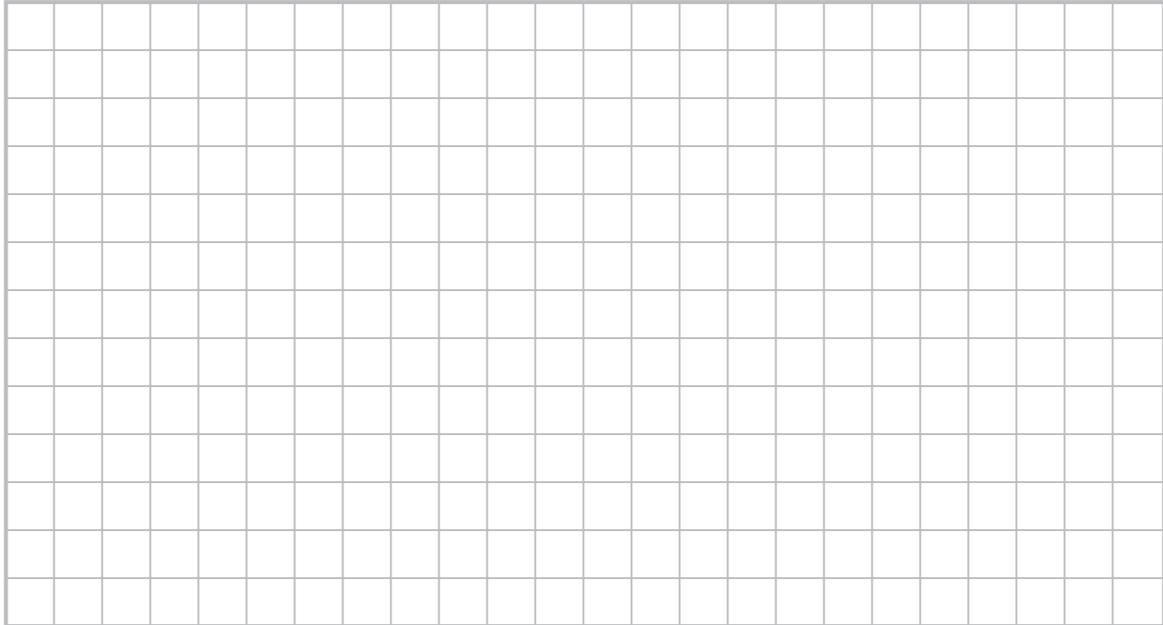
(action required)

Date completed: _____

Date of next review: _____

Floor Plan

Sketch the floor plan of your home and establish two exit routes.



Floor One

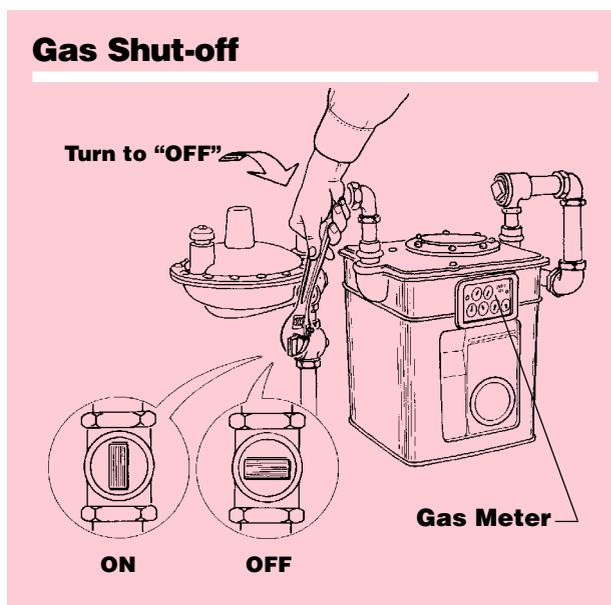


Floor Two

Utilities

Gas

- Locate your gas meter shutoff valve and learn how to turn the gas off.
- If you suspect the shutoff valve may be corroded and not working properly, call your utility company for an operational check of the valve.
- Ensure a wrench is immediately available for turning the gas meter off in an emergency.
- If you smell natural gas, get everyone out and away from the home immediately. Do not use matches, lighter, open flame appliances or operate electrical switches. Sparks could ignite gas causing an explosion.
- Shut off the gas **ONLY** if you smell gas and cannot locate the leak. **Let the gas company turn the gas back on.**
- Seek the assistance of a plumber to repair gas pipe damage.



Sewer

- Your sewer system could be damaged in a disaster such as an earthquake, landslide or flood. Make sure the system is functioning as designed before using it to prevent contamination of your home and possibly the drinking water supply.
- Have a bucket or portable toilet available for disposing of human waste. Plastic bags placed in the toilet bowl will also work.

Electricity

- Locate your main electrical switch or fuse panel and learn how to turn the electrical power off.
- Remember, electrical sparks can cause a fire or explosion.
- If you are using a generator as a backup power supply remember to:
 - Follow the generator manufacturer’s instructions.
 - Connect lights and appliances directly to the generator and not the electrical system.

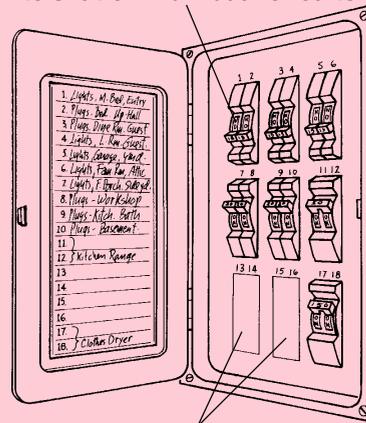
(Generators connected to a utility company’s electrical system must be inspected by the utility and the state electrical inspector. Failure to have the system inspected may result in death or injury to utility crews trying to restore service to the area)

Water

- Label the water shut off valve and learn to turn off the water supply to your home.
- Identify the valve with a large tag.
- Ensure valve can be fully turned off. If the water valve requires the use of a special tool, make sure the tool is readily available.
- Shut off the main valve to prevent contamination of the water supply in your water heater and plumbing.

Breaker Panel

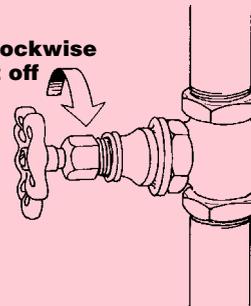
Switch breakers to “OFF” to shut off individual circuits



Blanks for additional circuits

Water Shut-off

Turn clockwise to shut off



Planning For Specific Disasters



Fire. More than 24 million fires are reported annually, resulting in over \$11 billion in property damage.

The United States has one of the highest fire death rates per capita in the world. At least 6,000 people die in fires each year, and an additional 100,000 are injured. Senior citizens and children under 5 are at highest risk. Fire is fast, dark and deadly, emitting smoke and gases that can render a person unconscious within minutes. It is the most likely disaster that families will experience.

Wildland fires in the Pacific Northwest burn thousands of acres in an average year. Most of these fires are caused by man. If you live in wildland areas, where flammable vegetation is abundant — your house could be a target for wildland fire.



Floods. Floods are the most common and widespread of all natural disasters and can occur nearly anywhere in the United States. Flooding has been responsible for the deaths of more than 10,000 people since 1900. Property damage attributable to

flooding now totals over \$1 billion each year. The sheer force of just six inches of swiftly moving water can knock people off their feet. Cars are easily swept away in just two feet of water. Flash floods can occur with little or no warning — and can reach full peak within minutes. Rapidly rising walls of water can reach heights of 30 feet or more and are generally accompanied by a deadly cargo of debris.



Earthquakes. Seventy million people in 39 states are at high risk from earthquakes. People in all states, however, are at some risk. Earthquakes can cause buildings to collapse, disrupt utilities and trigger landslides, avalanches, flash floods, fires, tsunamis and volcanoes. In the Pacific Northwest, thousands of earthquakes occur every year; catastrophic earthquakes will occur in the future.



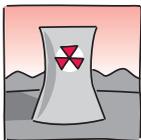
Winter Storms. Heavy snowfall and extreme cold can immobilize an entire region. Even areas which normally experience mild winters can be hit with a major snow storm or extreme cold. The results can range from isolation to the havoc of cars and trucks sliding on icy highways.



Power Outage. Everyone experiences power interruptions from time to time. Unfortunately, many of these outages come at times of weather extremes or accompany various disasters. When the power is out we lose our primary source of artificial light and many lose their source of heat and water as well. When the power is out, safety becomes a major concern.



Hazardous Materials. As many as 500,000 products pose physical or health hazards and can be defined as hazardous materials. Accidents involving toxic substances have occurred in communities across the country. For example, tank cars containing toxic substances derailed and burned in Kentucky, forcing 7,500 area residents to evacuate. A train derailment near Marysville, Washington resulted in a hazardous materials fire and the evacuation of over 100 homes.



Nuclear Power. In the United States, nuclear power plants have been generating power for more than 35 years. Nuclear power plants operate in most states in the country and produce about 20 percent of the nation's power. The Pacific Northwest has fixed nuclear power plants within its boundaries as well as several mobile nuclear power plants like ships and submarines and small non-power reactor sites.

The following pages give you specific instructions on what to do for fire, flood, earthquakes, winter storms, power outages, hazardous materials and nuclear power accidents. The preparedness steps in this section are in addition to those identified in the section "Four Steps to Disaster Planning." You should first complete "Four Steps to Disaster Planning."



Fire

Getting Prepared

Working smoke detectors double your chance of surviving a fire.

- Install smoke detectors, according to the manufacturer's directions, on every level of your house: outside bedrooms on the ceiling or high on the wall, at the top of open stairways, or at the bottom of enclosed stairs and near (but not in) the kitchen.
- Clean smoke detectors once a month and change batteries at two specified times each year, when you set your clocks for Daylight Savings or Standard Time.
- Plan two escape routes out of each room. Contact your local fire authority for help in planning for the safe escape of those with disabilities.
- Make sure windows are not nailed or painted shut and security grating on windows have a fire safety opening feature.
- Teach everyone to stay low to the floor when escaping from a fire.
- Pick a meeting place outside your home for the family to meet after escaping from a fire. **ONCE OUT, STAY OUT!**
- Practice your escape plans at least twice a year.
- Clean out storage areas. Store flammable and combustible liquids in approved containers. Keep containers in the garage or an outside storage area.
- Inspect electrical appliances and extension cords for bare wires, worn plugs and loose connections annually.
- Clean and inspect primary and secondary heating equipment annually.
- Learn how to turn off the gas and electricity in an emergency.
- Install A-B-C type fire extinguishers: teach family members how to use them.
- Inspect or service your fire extinguisher annually.

In Case of Fire

Not sure you can control the fire? Evacuate and then call the fire department from a neighbor's house.

- Do not attempt to extinguish a fire that is rapidly spreading.
- Use water or a fire extinguisher to put out **small** fires.
- Never use water on a electrical fire.
- Smother oil and grease fires in the kitchen with baking soda or salt, or put a lid over the flame if it is burning in a pan.

- If your clothes catch fire — **Stop–Drop–Roll** — until the fire is out.
- Sleep with your door closed.
- If the smoke alarm sounds, crouch down low, feel the bottom of the door with the palm of your hand before opening it. If the door is hot, escape through the window. If the door is not hot and this route is your only means of escape, crawl below the level of the smoke and use the first available exit door to escape. If you cannot escape, leave the door closed, stay where you are and hang a white or light-colored sheet outside the window.

After a Fire

Don't throw away damaged goods until an official inventory has been taken.

- Stay out of the burned structure.
- Notify your local disaster relief service if you need housing, food, etc.
- Call your insurance agent.
- Ask the fire department for assistance in retrieving important documents.
- Keep records of all clean-up and repair costs.
- Secure personal belongings.
- If you are a tenant, notify the landlord.



Floods

Getting Prepared

Learn what to do when you hear flood warning signals.

- Find out if you live in a flood-prone area and identify dams in your area.
- Ask your local emergency manager about official flood warning signals.
- Know the terms Flood Watch, Flash Flood Watch, Flood Warning, Flash Flood Warning, and Urban and Small Stream Warning.
- Plan for evacuation.
- Consider purchasing flood insurance.
- Take steps to floodproof your home. Call your local building department or emergency management office for information.
- Keep all insurance policies and your household inventory in a safe place.

In Case of Heavy Rains

If there is any possibility of a flash flood occurring, move immediately to higher ground.

- Be aware of flash floods.
- Listen to radio or television stations for local information.
- Be aware of streams, drainage channels and areas known to flood suddenly.
- If local authorities issue a flood watch, prepare to evacuate.
- Secure your home. If time permits, secure items located outside the house.
- If instructed, turn off utilities at the main switches or valves.
- Fill your car with fuel.
- Fill the bathtub with water in case water becomes contaminated or services are cut off. Sterilize the bathtub first.
- Stay away from flood waters.
- When deep flooding is likely, permit the flood waters to flow freely into your basement to avoid structural damage to the foundation and the house.

After a Flood

Flood waters may be contaminated by oil, gasoline, or raw sewage. The water may also be electrically charged from underground or downed power lines.

- Stay away from flood waters.
- Stay away from moving water. Moving water six inches deep can sweep you off your feet.
- Be aware of areas where flood waters have receded and may have weakened road surfaces.
- Stay away from and report downed power lines.
- Stay away from disaster areas unless authorities ask for volunteers.
- Continue listening to the radio for information about where to get assistance.
- Consider health and safety needs. Wash your hands frequently with soap and clean water if you come in contact with flood waters.
- Throw away food that has come in contact with flood waters.
- Call your insurance agent.
- Keep records of all clean-up and repair costs.
- Take photos of or videotape your belongings and your home.
- Don't throw away damaged goods until an official inventory has been taken.



Earthquakes

Getting Prepared

Look for items in your home that could become a hazard in an earthquake.

Conduct earthquake drills with your family.

- Securely fasten water heaters and gas appliances.
- Repair defective electrical wiring, leaky gas and inflexible utility connections.
- Place large or heavy objects on lower shelves. Fasten shelves to walls. Brace high and top-heavy objects.
- Store bottle foods, glass, china and other breakables on low shelves or in cabinets that can fasten shut.
- Anchor overhead lighting fixtures.
- Be sure house is firmly anchored to its foundation.
- Know where and how to shut off all utilities.
- Locate safe spots in each room.
- Identify danger zones in each room.
- Consider buying earthquake insurance.

When the Ground Moves

Doorways are not always a safe place to be during an earthquake.

- If indoors — take cover under sturdy furniture or against an inside wall, and hold on. **Drop, Cover & Hold.** Stay away from the kitchen!
- If outdoors — stay there. Move away from buildings, street lights and utility wires.
- In a high-rise building — take cover under sturdy furniture away from windows and outside walls. Stay in the building on the same floor. An evacuation may not be necessary. Wait for instructions from safety personnel. Do not use elevators.
- In a vehicle — stop as quickly as safety permits, and stay in the vehicle. Avoid stopping near or under buildings, trees, overpasses or utility wires.

When the Shaking Stops

Do not use candles, matches or open flames indoors because of the possibility of gas leaks.

If you live near coastal waters evacuate to high ground immediately.

- If the electricity is out — use flashlights or battery powered lanterns.
- If you smell gas or hear a hissing or blowing sound — open a window and leave the building. Shut off the main gas valve outside.
- Be prepared for aftershocks.
- Check for injuries; yourself and those around you.
- If there is electrical damage — switch off the power at the main control panel.

- If water pipes are damaged — shut off the water supply at the main valve.
- Wear sturdy shoes in areas covered with fallen debris and broken glass.
- Check your home for structural damage. Check chimneys for damage.
- Clean up spilled medicines, bleaches, gasoline and other flammable liquids.
- Visually inspect utility lines and appliances for damage.
- Do not flush toilets until you know that sewage lines are intact.
- Open cabinets cautiously. Beware of objects that can fall off shelves.
- Use the phone only to report a life threatening emergency.
- Listen to news reports for the latest emergency information.
- Stay off the streets.
- Stay away from damaged areas, unless your assistance has been specifically requested by proper authorities.
- Be aware of a possible tsunami. Go to high ground and remain there until you are told it is safe to return to home.



Winter Storms and Extreme Cold

Getting Prepared

Dress for the weather and keep a “winter car kit” in the trunk of your car.

- Know the terms used by weather forecasters.
- Consider purchasing a battery-powered NOAA weather radio and stock extra batteries.
- Keep rock salt to melt ice on walkways and sand to improve traction.
- Make sure you have sufficient heating fuel.
- Make sure you have an alternate heat source and a supply of fuel.
- Install storm windows or cover windows with plastic.
- Insulate walls and attics.
- Caulk and weatherstrip doors and windows.
- Keep your car “winterized” with antifreeze. Use snow tires.

During a Winter Storm

When using kerosene heaters, maintain ventilation to avoid a build-up of toxic fumes.

- Listen to the radio or television for weather reports and emergency information.
- Wear several layers of loose-fitting, light-weight, warm clothing rather than one layer of heavy clothing.
- Wear mittens instead of gloves.
- Wear a hat — most body heat is lost through the top of the head.
- Avoid overexertion.
- Watch for signs of frostbite. If symptoms are detected, get medical help immediately.
- Watch for signs of hypothermia. If symptoms are detected, get medical help immediately.
- Conserve fuel if necessary by keeping your house cooler than normal.
- Refuel kerosene heaters outside and keep them at least three feet from flammable objects.
- If you must travel consider using public transportation.

Caught in Your Car During a Blizzard

Remain in your vehicle and wait to be found.

- Pull off the highway and set your hazard lights to flash. Hang a distress flag from the radio antenna
- Run the engine and heater about ten minutes each hour to keep warm. While the engine is running, slightly open a window and keep the exhaust pipe free of snow.
- Exercise lightly to maintain body heat. Huddle with passengers to stay warm.
- Take turns sleeping.
- Be careful not to run the car battery down.
- If stranded in a remote rural or wilderness area, spread a large cloth over the snow to attract attention of rescue personnel.
- Once the blizzard passes, you may need to leave the car and proceed on foot.



Power Outages

Getting Prepared

Cordless phones do not work when the power is out.

- Register life-sustaining equipment with your utility.
- Consider purchasing a small generator or know where to rent one if you use life sustaining equipment that requires electrical power.
- Post the telephone number of the New Construction, Repairs and Power Outage listing of your local utility.
- If you own an electric garage door opener, learn how to open the door without power.
- Prepare a power outage kit. For short duration outages consider having glow light sticks, flashlights, battery-powered radio, extra batteries and a wind-up clock on hand.
- Make sure you have an alternate heat source and a supply of fuel.
- Have a corded telephone available.
- When installing generators, follow the manufacturer's instructions and have it inspected by the utility company and the state electrical inspector.

When the Lights Go Out

Report power outages to the utility company.

- If your house is the only one without power, check your fuse box or circuit breaker panel. Turn off large appliances before replacing fuses or resetting circuits.
- If power is out in the neighborhood, disconnect all electrical heaters and appliances to reduce the initial demand and protect the motors from possible low voltage damage.
- If you leave home, turn off or unplug heat producing appliances.
- Unplug computers and other voltage sensitive equipment to protect them against possible surges when power is restored.
- Conserve water, especially if you are on a well.
- Keep doors, windows and draperies closed to retain heat in your home.
- Keep refrigerator and freezer doors closed. If the door remains closed, a fully loaded freezer can keep foods frozen for two days.
- Be extremely careful of fire hazards caused by candles or other flammable light sources.

- When using kerosene heaters, gas lanterns or stoves inside the house, maintain ventilation to avoid a build-up of toxic fumes. *Never use charcoal or gas barbecues inside; they produce carbon monoxide.*
- Connect lights and appliances directly to a generator, not to an existing electrical system.

NOTE: Leave one light switch in the on position to alert you when service is restored.



Hazardous Material Accidents

Getting Prepared

Evaluate the risks to your family.

- Ask your local fire department about emergency warning procedures.
- Find out precise information about where reportable quantities of extremely hazardous substances are stored and where they are used.
- Ask your Local Emergency Planning Committee (LEPC) about community plans for responding to hazardous material accidents.
- Determine how close you are to freeways, railroads or factories which may produce or transport toxic materials.
- Be prepared to evacuate.
- Have materials available to seal off your residence from airborne contamination.

Responding to a Hazardous Material Incident

Strictly follow all instructions given by emergency authorities.

- If you are a witness — call 911 or your local fire department.
- If you hear a warning signal — listen to local radio or television stations for further information. Follow all instructions.
- Stay away from the incident site to minimize the risk of contamination.
- If caught outside — stay upstream, uphill or upwind. Try to go one-half mile (10 city blocks) from the danger area.
- If you are in a car — close windows and shut off ventilation.
- Evacuate if told to do so.
- If local officials say there is time, close all windows, shut vents, and turn off attic fans and other ventilation systems to minimize contamination.

- To reduce the possibility of toxic vapors entering your home, seal all entry routes as efficiently as possible.
- If an explosion is imminent — close drapes, curtains and shades.
- If you suspect gas or vapor contamination — take shallow breaths through a cloth or towel.
- Avoid contact with any spilled liquid materials, airborne mist or condensed solid chemical deposits.
- Do not eat or drink any food or water that may have been contaminated.

After a Hazmat Incident

Follow decontamination instructions from local authorities.

- Seek medical help for unusual symptoms.
- If medical help is not immediately available and you suspect contamination — remove all clothing and shower thoroughly.
- Place exposed clothing and shoes in tightly sealed containers without allowing them to contact other materials: get directions for proper disposal.
- Advise others of your possible contamination.
- Get direction from local authorities on how to clean up your land and property.
- Return home only when directed to do so.
- Upon returning home, ventilate the house.
- Report lingering vapors or other hazards.



Nuclear Power Plants

Getting Prepared

Time, distance and shielding are the keys to minimizing radioactive exposure.

- Know the terms that describe a nuclear emergency:
 - Notification of Unusual Event
 - Alert
 - Site Area Emergency
 - General Emergency
- Learn your community’s warning system. Commercial nuclear power plants are required to install sirens and other warning systems within a ten mile area.
- Obtain public emergency information materials from the company operating the plant.
- Learn the emergency plans for schools, day care centers, nursing homes and other places where members of your family might be.
- Be prepared to evacuate.

Responding to a Power Plant Emergency

Local instructions take precedence over advice in the handbook.

- Keep calm. Not all incidents result in the release of radiation.
- Stay tuned to your local radio or television stations for information.
- Evacuate if you are advised to do so.
 - Close and lock home doors and windows.
 - Keep car windows and vents closed; use recirculating air.
 - Listen to the radio for evacuation routes and other information.
- If not ordered to evacuate — stay indoors.
 - Close doors and windows
 - Turn off air conditioner, ventilation fans, furnace and other air intakes.
 - Go to a basement or other underground area if possible.
 - Keep a battery-powered radio handy at all times.
 - If you must go outdoors — cover your nose and mouth with a handkerchief.
- Shelter livestock and give them stored feed, if time permits.
- Do not use the telephone unless absolutely necessary.
- If you have just been outdoors — shower and change clothes. Put clothing and shoes in a plastic bag; seal it up and store it out of the way.

Three ways to purify water

In addition to having a bad odor and taste, contaminated water can contain microorganisms that cause diseases such as dysentery, typhoid and hepatitis. You should purify all water of uncertain purity before using it for drinking, food preparation or hygiene.

There are many ways to purify water. None is perfect. Often the best solution is a combination of methods.

Two easy purification methods are outlined below. These measures will kill most microbes but will not remove other contaminants such as heavy metals, salts and most other chemicals. Before purifying, let any suspended particles settle to the bottom, or strain them through layers of paper towel or clean cloth.

1 Boiling. Boiling is the safest method of purifying water. Bring water to a rolling boil for 3-5 minutes, keeping in mind that some water will evaporate. Let the water cool before drinking.

Boiled water will taste better if you put oxygen back into it by pouring the water back and forth between two clean containers. This will also improve the taste of stored water.

2 Disinfection. You can use household liquid bleach to kill microorganisms. Use only regular household liquid bleach that contains 5.25 percent sodium hypochlorite. Do not use scented bleaches, colorsafe bleaches or bleaches with added cleaners.

Add 16 drops of bleach per gallon of water, stir and let stand for 30 minutes. If the water does not have a slight bleach odor, repeat the dosage and let stand another 15 minutes.

The only agent used to purify water should be household liquid bleach. Other chemicals, such as iodine or water treatment products sold in camping or surplus stores that do not contain 5.25 percent sodium hypochlorite as the only active ingredient, are not recommended and should not be used.

NOTE: While the two methods described above will kill most microbes in water, distillation will remove microbes that resist these methods, and heavy metals, salts and most other chemicals.

3 Distillation. Distillation involves boiling water and then collecting the vapor that condenses back to water. The condensed vapor will not include salt and other impurities. To distill, fill a pot halfway with water. Tie a cup to the handle on the pot's lid so that the cup will hang right-side-up when the lid is upside-down (make sure the cup is not dangling into the water) and boil the water for 20 minutes. The water that drips from the lid into the cup is distilled.

Emergency Telephone Numbers

Out-of-Area Contact

Name _____
City _____
Telephone (day) (____) _____ (Evening) (____) _____

Local Contact

Name _____
City _____
Telephone (day) (____) _____ (Evening) (____) _____

Nearest Relative

Name _____
City _____
Telephone (day) (____) _____ (Evening) (____) _____

Family Work Numbers

Father _____ Mother _____
Other _____

Emergency Telephone Numbers

In a life threatening emergency, dial 911 or the local emergency medical services system number.

Police Department _____
Fire Department _____
Hospital _____

Family Physicians

Name _____ Telephone _____
Name _____ Telephone _____
Name _____ Telephone _____

Reunion Locations

1. Right outside your home _____
2. Away from the neighborhood, in case you cannot return home _____

Address _____
Telephone _____
Route to try first _____

The **Out-Of-Area Contact** is one of the most important concepts in your disaster plan. When disaster occurs, you will be concerned about the welfare of your loved ones.

In a disaster, local telephone service may be disrupted. However, long distance lines, because they are routed many different ways out of your community, may be open. It is also important to remember that the telephone company's emergency telephone network is the pay telephone system. They will restore it before the rest of the system. So, if you have change to make a pay telephone call and an out-of-area contact, you may be able to communicate with loved ones in the disaster area indirectly through your out-of-area contact.

Reunion Points. After a disaster it may be impossible for family members to return home for one reason or another. It is very important that you select a meeting point in the community where you can once again join the members of your household.

