

WYOMING WINTER



WEATHER PREPAREDNESS

Introduction

The Wyoming Office of Homeland Security/Emergency Management Agency (WOHS/EMA) publishes this book with the hope the information it contains will prove helpful to the residents of Wyoming who must endure not only the cold of our winter months but also the isolation and loneliness that may result from a winter storm.

Because Wyomingites do a considerable amount of traveling in their everyday activities, a portion of this book has been devoted to tips that should make winter automobile traveling safer. Tips are also given on how one may cope with the situation at home when electricity and the conventional forms of heating and cooking are no longer functioning.

We urge you to read this book now. Many of the tips presented are predicated on the supposition that you will take actions now which will prevent the danger to life and limb from ever occurring.

The information contained in this book has been repeated by various agencies concerned with the safety of our residents. In one way or another, either as an original source or through a process of osmosis, the Federal Emergency Management Agency, the United States Fire Administration, the American Red Cross, and the National Weather Service should be listed as the major agencies imparting these lifesaving ideas.

Originally prepared by

The South Dakota Division of Emergency Management

Modified by

Wyoming Office of Homeland Security/Emergency Management Agency
5500 Bishop Blvd.
Cheyenne, Wyoming 82009-3320
(307) 777-4663

This publication may be found on the Wyoming Office of Homeland Security website at http://wyohomelandsecurity.state.wy.us/pubs/winter_manual.pdf

Published September 2003

Table of Contents

General Information

Severe/Hazardous Weather Terms.....	1
Safety Tips.....	2
Family Disaster Plan.....	6
Emergency Supplies Checklist.....	7
Wind Chill.....	8
NOAA Weather Radio.....	9
SAME Codes for Wyoming Counties.....	10

Winter Travel

If You Must Go Outside.....	12
Winter Car Kit.....	14
Survival Tips if You're Stranded.....	16

Staying Healthy in Extreme Cold

Exposure to the Cold - Signs and Treatments.....	17
Recommended Winter Attire.....	18
Make them Golden Years, Not Frozen Years (poster).....	19
Protection for Pets.....	21

Students

Match Up Game.....	22
Word Search.....	23
Word Search Answer Key.....	24
Disaster Math.....	25
Word Puzzle.....	26

Resource Information

County Emergency Managers' Contact Numbers.....	27
Tribal Emergency Managers' Contact Numbers.....	28
Websites for Additional Information.....	28

Severe/Hazardous Weather Terms

Become familiar with the National Weather Service (NWS) key words that are frequently used in winter weather forecasts. If you are in the alerted area, check your TV or listen to your local radio station or a weather radio for the latest advisories. Knowing the terms enables you to take necessary precautionary measures.

Winter Storm Outlook - Issued prior to an official Winter Storm Watch issuance. The outlook is given when forecasters believe winter storm conditions are possible. This prediction is usually issued 3 to 5 days in advance of the winter storm.

Winter Storm Watch - Alerts the public to the potential for blizzard conditions, heavy snow, significant icing, or a combination of these events. Watches are usually issued 12 to 48 hours before the beginning of the winter storm.

Winter Storm Warning - Issued when a combination of heavy snow, heavy freezing rain or heavy sleet is expected to occur. Winter storm warnings usually are issued when hazardous weather is occurring or imminent.

...heavy snow - Six inches or more of snow in 12 hours or less **or** eight inches or more in 24 hours.

...significant icing - Usually an ice accumulation of 1/4 inch or more from freezing rain, an accumulation of 1/2 inch or more of sleet, or a combination of freezing rain and sleet.

Ice Storm Warning - Heavy ice accumulations will cause extremely dangerous and damaging situations, such as icy roads and downed power lines.

Blizzard Warning - Issued for sustained or gusty winds of 35 mph or more and falling or blowing snow creating visibility below 1/4 mile. These conditions should persist for at least three hours.

Wind Chill Advisory - Issued when wind chills are expected to be -34 degrees Fahrenheit or lower. However, an advisory may be issued for wind chills from -20 to -35 degrees Fahrenheit early or late in the winter season.

Wind Chill Warning - Issued when wind chills are below -30 degrees Fahrenheit.

A minimum 10 mph should be occurring or forecast.

Winter Weather Advisories - Issued for winter weather conditions which will cause significant inconvenience and may be hazardous. If you are cautious, these situations should not be threatening.

...for snow - Three to five inches of snow is expected.

...for freezing rain, freezing drizzle - Any accretion or accumulation up to 1/4 inch.

...for blowing and drifting snow - When blowing snow will restrict visibility to 1/8 mile or less and cause significant drifting snow.

Dense Fog Advisory - Issued when widespread fog will reduce visibility to 1/4 mile or below and persist for two hours or more.

High Wind Warning - Issued when sustained winds of 40 mph or greater are expected to last one hour or longer **or** wind gusts of 60 mph or greater.

Safety Tips

A winter storm could isolate you in your home for several days. Be prepared to be without electricity and conventional forms of heating and cooking.

Protecting Your Home

- Every home should have a severe weather safety kit: a battery-operated radio, flashlight, matches, extra batteries and a set of house and car keys. Stock ample wood for the fireplace and plenty of non-perishable foods that can be eaten without heating. Keep bottled water and juices on hand in case your power and water supplies are interrupted.
- Other items to consider including in the kit are prescription medicine and non-perishable infant formula, especially if there is a chance that roads will be impassable.
- Remove dead tree branches. Ice and snow, combined with winter winds, can cause limbs to snap. Not only is this a hazard to your roof and car, but it can injure a passerby.
- Clean gutters. Snow and ice can build up quickly, especially if your gutters are clogged with leaves. When thawing begins, the water has nowhere to drain and can back up under your roof and eaves, causing wall and ceiling damage. Consider buying screens to keep your gutters debris-free or installing heating cables along the gutter to prevent such a buildup.
- Check your homeowners insurance policy to make sure coverage is adequate for the type of winter weather in your area.
- Make sure auxiliary heaters and fireplaces are adequately maintained and serviced. Many fires related to auxiliary heating sources are preventable through simple maintenance. Before installing a wood-burning stove, check with local fire officials as to codes and proper installation techniques. Do not store kerosene in a non-approved container or in your home.
- During the winter, drain pipes if your power goes off or if you plan on an extended stay away from home. To drain, turn off the water heater and main water supply, open all faucets in the house and drain the system by keeping the valves open. Drain all toilets by holding the lever down until the tank empties.
- If well water is used, the pump's electric switch should be shut off and the pressure tank and system should be drained.



Room Heating

- Keep on hand an adequate supply of heating fuel at all times. During a storm your regular supplier may not be able to get to you.
- Conserve fuel by keeping the house cooler than usual or by temporarily closing off some of the rooms.
- Use an alternate heat source: a camp stove, kerosene heater, or a supply of wood if you have a fireplace. Be sure you know how to use your alternate heat source so it will not cause a fire or give off dangerous fumes.



- Keep kerosene or other flammable liquids stored in approved metal containers, in well-ventilated storage areas, outside of the house.
 - Use only fuel recommended by the heater manufacturer. Never introduce a fuel into a unit not designed for that type of fuel.
 - Heating oil expands when it becomes warm. Be careful not to overfill oil burning heaters.
 - Use a screen around stove or space heaters that have open flames. Provide adequate clearance from wall and combustibles, such as clothes racks, curtains, bed, or other furniture.
- If you are using an electric heater, be sure your house wiring is adequate. Only use extension cords that have the necessary rating to carry the amp load.
 - Avoid using electric space heaters in bathrooms or other areas where they may come in contact with water.
 - Keep young children away from space heaters, particularly when they are wearing nightgowns or other loose clothing that can be easily ignited.
 - When using a fuel-burning appliance in the bedroom, be sure there is proper ventilation to prevent a buildup of carbon monoxide.
 - Use only safety listed equipment. If you choose an electric or oil heater, look for the UL label. A gas appliance carries an AGA or UL label.
 - Never use a gas range or an oven to heat your kitchen. Any unvented fuel-burning appliance is capable of producing deadly levels of carbon monoxide.

Wood Stoves and Fireplaces

When temperatures inside are kept down, a crackling fire in the fireplace is a cozy and cheery way to keep warm. But these fires, if not carefully tended, may cause tragedy. To use them safely:

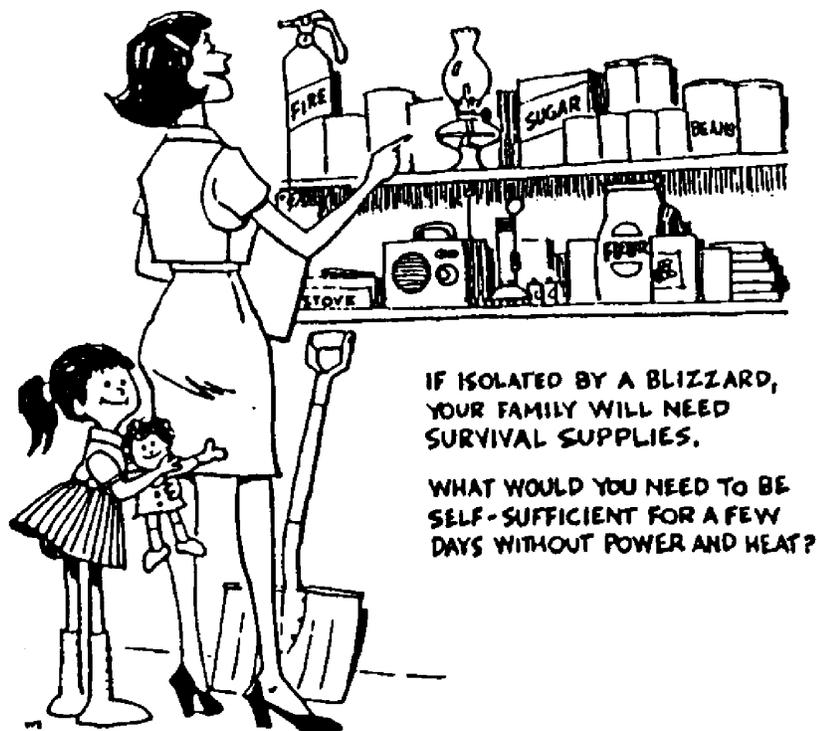
- Be sure the stove or fireplace is installed properly. Wood stoves should have adequate clearance (36") from combustible surfaces, and proper floor support and protection.
- Wood stoves should be of good quality, solid construction and design, and should be UL listed.
- Have the chimney inspected annually and cleaned if necessary, especially if it has not been used for some time.
- Do not use flammable liquids to start or accelerate any fire.
- Keep a glass or metal screen in front of the fireplace opening, to prevent embers or sparks from jumping out, unwanted material from going in, and help prevent the possibility of burns to occupants.
- The stove should be burned hot twice a day for 15-30 minutes to reduce the amount of creosote buildup.
- Don't use excessive amounts of paper to build roaring fires in fireplaces. It is possible to ignite creosote in the chimney by overbuilding the fire.
- Never burn charcoal indoors. Burning charcoal can give off lethal amounts of carbon monoxide.
- Keep flammable materials away from your mantel. A spark from the fireplace could easily ignite these materials.
- Before you go to sleep, be sure your fireplace fire is out. **NEVER close your damper with hot ashes in the fireplace.** A closed damper will help the fire to heat up again and will force toxic carbon monoxide into the house.
- If synthetic logs are used, follow the directions on the package. Never break a synthetic log apart to quicken the fire or use more than one log at a time. They often burn unevenly, releasing higher levels of carbon monoxide.



Miscellaneous

- Be sure every level of your home has a working smoke detector, and be sure to check and clean it on a monthly basis.

- Frozen water pipes? Never try to thaw them with a blow torch or other open flame. Use hot water or a UL labeled device such as a hand held dryer for thawing, otherwise a fire could be the result.
- If windows are used as emergency exits in your home, practice using them in the event fire should strike. Be sure that all windows open easily. Home escape ladders are recommended.
- If there is a fire hydrant outside your home, you should keep the hydrant clear of snow. In case of a fire, this action may save your home or that of your neighbor.
- Stock an emergency supply of food and water. Included should be food that does not require refrigeration or cooking.
- In a cold house, dress warmly using several layers of loose-fitting clothing to trap body heat. Because the body loses between half and three-quarters of its heat through the head, wear a hat even when sleeping.
- Keep on hand the simple tools and equipment needed to fight a fire. Fire departments may not be able to respond as quickly during or immediately after a winter storm.



Family Disaster Plan

Prepare for hazards that affect your area with a Family Disaster Plan. Where will your family be when disaster strikes? They could be anywhere: at work, at school or in the car. How will you find each other? Will you know if your children are safe? Disasters may force you to evacuate your neighborhood or confine you to your home. What would you do if basic services - water, gas, electricity, or telephones - were cut off?

Steps to Take

- I. Gather information about hazards. Find out what type of disasters could occur and how you should respond. Learn your community's warning signals and evacuation plans. Assess your risks and identify ways to make your home and property more secure.
- II. Meet with your family to create a plan. Discuss your plan with your family. Pick two places to meet: a spot outside your home for an emergency, such as fire, and a place away from your neighborhood in case you can't return home. Choose an out-of-state friend as your "family check-in contact" for everyone to call if the family gets separated. Discuss what you would do if advised to evacuate.
- III. Implement your plan.
 1. Post emergency telephone numbers by the phone.
 2. Install safety features in your home, such as smoke alarms and fire extinguishers.
 3. Inspect your home for potential hazards (items that can move, fall, break or catch fire) and correct them.
 4. Have your family learn basic safety measures, such as CPR and first aid, how to use a fire extinguisher, and how and when to turn off water, gas and electricity in your home.
 5. Teach children how and when to call 911 or your local Emergency Medical Services number.
 6. Keep enough supplies in your home for at least three days.
 7. Assemble a disaster supplies kit. Store the supplies in sturdy, easy-to-carry containers, such as backpacks or duffle bags.
 8. Keep important documents in a waterproof container.
 9. Keep a small disaster supplies kit in the trunk of your car.
- IV. Practice and maintain your plan. Ensure your family knows meeting places, phone numbers and safety rules. Conduct drills. Test your smoke alarms monthly and change the batteries at least once a year. Test and recharge your fire extinguisher(s) according to manufacturer's instructions. Replace stored water and food every 6 months.



Emergency Supplies Checklist

Stocking up now on emergency supplies can add to your safety and comfort during and after a disaster. Store enough supplies to last for three days.

Survival Essentials

- Water - one gallon per person per day for at least three days
- First aid kit - freshly stocked
- First aid book
- Food - nonperishable food such as granola bars, dried fruit, canned food, beef jerky, baby food, special diets, etc.
- Blankets, sleeping bags, and tent
- Baby supplies - formula, bottles, pacifiers, diapers, wipes, food and juices
- Sturdy shoes and heavy gloves
- Portable radio and flashlights with extra batteries
- Essential medications, list of medications including dosage and list of allergies
- Extra eyeglasses and hearing aid batteries
- Extra house and car keys
- Fire extinguisher - ABC type
- Can opener (non-electric)
- Water, food and a restraint (leash or carrier) for pets
- Small amount of money

Sanitation Supplies

- Large plastic trash bags for wastes and protection

- Bar soap, detergent and shampoo
- Toothpaste and toothbrushes
- Feminine and infant hygiene supplies
- Toilet paper
- Household bleach
- Newspaper to wrap garbage and waste

Cooking

- Plastic knives, forks and spoons
- Paper plates, napkins and cups
- Paper towels
- Aluminum foil
- Camp stove for outdoor cooking
- Fuel for cooking (charcoal, camp stove fuel, etc.)

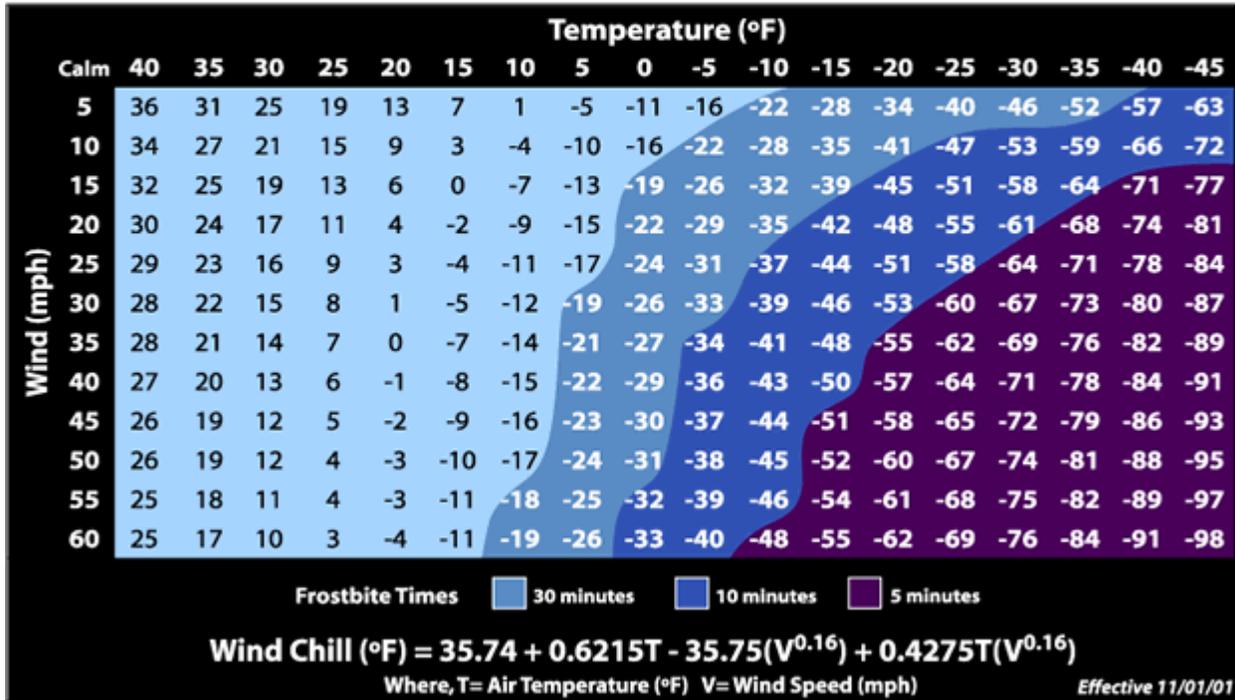
Tools and Supplies

- Ax, shovel and broom
- Coil of 1/2" rope
- Wrench for turning off gas
- Screwdriver, pliers and hammer
- Duct tape
- Plastic tape and sheeting for window sealing and replacement
- Quiet toys for children

Wind Chill



Wind Chill Chart



On November 1, 2001, the National Weather Service (NWS) implemented a replacement Wind Chill Temperature (WCT) index. The change improved upon the previous WCT Index used by the NWS and the Meteorological Services of Canada (MSC, the Canadian equivalent of the NWS), currently based on the 1945 Siple and Passel Index.

The new formula uses advances in science, technology, and computer modeling to provide a more accurate, understandable, and useful formula for calculating the dangers from winter winds and freezing temperatures. Clinical trials were conducted at the Defence and Civil Institute of Environmental Medicine in Toronto, Canada and the trial results were used to improve the accuracy of the new formula and determine frostbite threshold values.

Standardization of the WCT Index among the meteorological community provides an accurate and consistent measure to ensure public safety.

The NWS may adjust the WCT for solar radiation (i.e. the impact of sun) for a variety of sky conditions (sunny, partly sunny and cloudy).

NOAA Weather Radio

Newspaper, radio and television are all good sources of weather data. However, if you want the most accurate and timely information, go to the source itself. You can listen to a weather radio designed to pick up broadcasts of the National Oceanic and Atmospheric Administration (NOAA).



NOAA Weather Radio (NWR) provides continuous broadcasts of the latest weather information directly from the National Weather Service offices and these broadcasts are tailored for your specific area. A number of commercial manufacturers offer weather radios designed specifically for receiving NOAA's high frequency transmissions. NOAA Weather Radio broadcasts can usually be heard as far as 40 miles from the transmission site. The broadcast range depends upon a number of factors including signal strength, terrain, quality of your weather radio, and current weather conditions.

With the implementation of the Emergency Alert System (EAS) and Specific Area Message Encoding (SAME), it is now possible to program certain weather radios to sound an alert for only the counties desired in a specific NWR's broadcast area. The owner of a NWR with SAME technology would program the desired county into the radio. It will then alert the user *only* to weather emergencies for the specific county programmed. Older (non-SAME) NWR receivers without SAME capability would alert for emergencies anywhere within the coverage area of the NWR transmitter, even though the emergency could be well away from the listener. The SAME technology can eliminate this appearance of over-warning. You can find out more information about SAME Technology or EAS Broadcasts from the National Weather Service (NWS) at <http://www.crh.noaa.gov/cys/cysnwr.php>.

NOAA Weather Radio is not just for emergencies. It is a round-the-clock source of weather reports and information to help you prepare for the day ahead. Each NWS office tailors its broadcast to suit local needs. Routine programming is repeated every few minutes and consists of the local and regional forecast as well as the latest regional weather conditions. Additional information including river stages and climatic information is also provided.

In the event of a natural disaster or non-weather related emergency, the weather radio can be used to notify residents of the state.

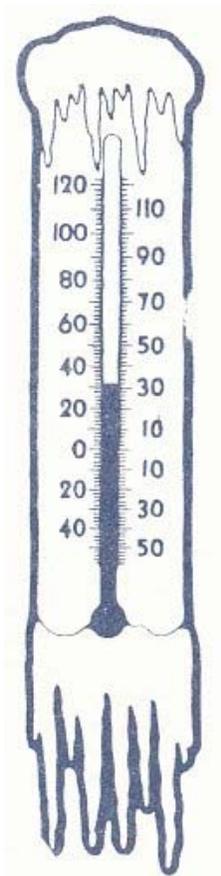
SAME Codes for Wyoming Counties

COUNTY	SAME #	NWR TRANSMITTER	FREQ.	CALL	WATTS	REMARKS
Albany	056001	Cheyenne	162.550	WXM37	1000	South 2/3
Big Horn	056003	Cody	162.400	WNG563	300	
Big Horn	056003	Cedar Mountain	162.525	WNG568	300	
Campbell	056005	—No NWR coverage—				
Carbon	056007	Rawlins	162.425	KXI37	300	
Converse	056009	Casper Mountain	162.400	WXM47	400	
Converse	056009	Glendo	162.450	WNG571	1000	SE
Crook	056011	Lead SD	162.525	WXL23	300	
Fremont	056013	Lander	162.475	WXM61	1000	E 2/3rds
Fremont	056013	Thermopolis	162.425	WNG573	300	NE
Goshen	056015	Glendo	162.450	WNG571	1000	North 1/2
Hot Springs	056017	Thermopolis	162.425	WNG573	300	
Johnson	056019	Sheridan	162.475	WXM46	400	
Johnson	056019	Kaycee	162.550	WNG662	300	S
Laramie	056021	Cheyenne	162.550	WXM37	1000	
Lincoln	056023	Afton	162.425	WNG569	300	
Natrona	056025	Casper Mountain	162.400	WXM47	400	
Niobrara	056027	Glendo	162.450	WNG571	1000	South 1/2
Park	056029	Cody	162.400	WNG563	300	
Platte	056031	Cheyenne	162.550	WXM37	1000	South 1/2
Platte	056031	Glendo	162.450	WNG571	1000	
Sheridan	056033	Sheridan	162.475	WXM46	400	
Sublette	056035	—No NWR Coverage—				
Sweetwater	056037	Rock Springs	162.550	KXI34	300	W/Cent
Teton	056039	Jackson	162.400	KWN39	300	
Uinta	056041	Evanston	162.450	KXI85	300	
Washakie	056043	Cedar Mountain	162.525	WNG568	300	
Weston	056045	Lead SD	162.525	WXL23	300	NE

This page left intentionally blank

If You Must Go Outside

- **Avoid overexertion.** Cold weather itself, without any physical exertion, puts an extra strain on the heart. If you add to this the strain of heavy physical activity such as shoveling snow, pushing an automobile or even walking too fast or too far, you risk damaging your body.
- **Dress warmly** in loose-fitting layers of light-weight clothing. Trapped air insulates. Layers can be removed to avoid perspiration and subsequent chill. Outer garments should be tightly woven and water repellent. Wear a hat. Protect your face and cover your mouth to protect your lungs from very cold air. Wear mittens, snug at the wrist, instead of gloves - they allow your fingers to move freely in contact with one another and will keep your hands much warmer.
- **Watch for frostbite** and other symptoms of cold-weather exposure. Frostbite causes a loss of feeling and a white or pale appearance in extremities such as fingers, toes, tip of nose, or ear lobes. If such symptoms are detected, get medical attention immediately. Do not rub with snow or ice - this does not help the condition and, in fact, will make it worse. The best treatment for frostbite is the rewarming of the affected tissue, as described in this book's section on treatment for cold weather exposure.
- **Avoid alcoholic beverages.** Alcohol causes the body to lose its heat more rapidly - even though one may feel warmer after drinking alcoholic beverages.
- **Keep yourself and your clothes dry.** Change wet socks and all other wet clothing as quickly as possible to prevent loss of body heat. Wet clothing loses all of its insulating value and transmits heat rapidly.
- **If physically challenged persons, infants, or the elderly** must go outside in severe weather, they should be checked frequently for signs of frostbite.



Winter Travel Safety Tips

For safety and fuel economy you should keep your car in top operating condition all year round. However in places where the temperature drops below the freezing mark, it is especially important that your car be winterized, properly serviced, and equipped with proper tires. Some items to check before you do any winter traveling are:

- | | | |
|--|---|---|
| <input type="checkbox"/> Ignition System | <input type="checkbox"/> Heater | <input type="checkbox"/> Winter-Grade Oil |
| <input type="checkbox"/> Battery | <input type="checkbox"/> Defroster | <input type="checkbox"/> Brakes |
| <input type="checkbox"/> Lights | <input type="checkbox"/> Fuel System | <input type="checkbox"/> Wiper Blades |
| <input type="checkbox"/> Tire Tread | <input type="checkbox"/> Exhaust System | <input type="checkbox"/> Washer Fluid |
| <input type="checkbox"/> Cooling System | <input type="checkbox"/> Antifreeze | <input type="checkbox"/> Lubrication |

Your trips can be more pleasant with greater chance of arriving at your destination safely if you follow these tips:

- Make sure your headlights, taillights, and windows are clean so that you can see and be seen.
- Plan your travel, selecting both primary and alternate routes.
- Check the latest weather information on your weather radio prior to leaving.
- Try not to travel alone - two or three people are preferable.
- Travel in convoy with another vehicle, if possible.
- Always fill the gasoline tank before entering open country, even for a short distance. If you do get stranded, you will have enough gas to run the motor and heat the vehicle.
- Drive carefully and defensively. Don't try to save time by traveling faster than road and weather conditions permit.
- If the storm begins to be too much for you to handle, seek refuge immediately. Don't be daring or foolhardy. Don't risk being stalled, lost or isolated.
- Let someone know your leave time, expected arrival time, and route. If you must use an alternate route or your arrival time is off, take time to call ahead and inform somebody.
- Carry a cellular phone with a charged battery or coins for a pay phone.
- Become familiar with your vehicle's winter weather operating characteristics. Front-wheel-drive vehicles generally handle better than rear-wheel vehicles on slippery roads because the weight of the engine is on the drive wheels, improving traction.
- Never decrease tire pressure in an effort to gain traction. All you'll do is wear out your tires.
- If you need to turn on your wipers, you need to turn on your headlights. Low beams are better in wet weather.
- Take any corrective actions gradually. Gently apply pressure to your brakes to stop. Check your vehicle operations manual for the proper method to correct a skid while driving your automobile.
- If your lock freezes, heat your key. Don't pour hot water on the lock - it'll just re-freeze.

Winter Car Kit

Winter travel by automobile is serious business. Be equipped for the worst, especially if you anticipate a long trip. The length of the trip and common sense will dictate what should be included in the winter car kit. Traveling on the major highways will lessen the likelihood of being stranded for any appreciable time.

Therefore, the minimal kit should consist of extra warm clothing, blanket, water, flashlight, distress flag, shovel, and sand. The following comprehensive equipment list will help you keep **warm, visible, and alive** if you become trapped by a winter storm.

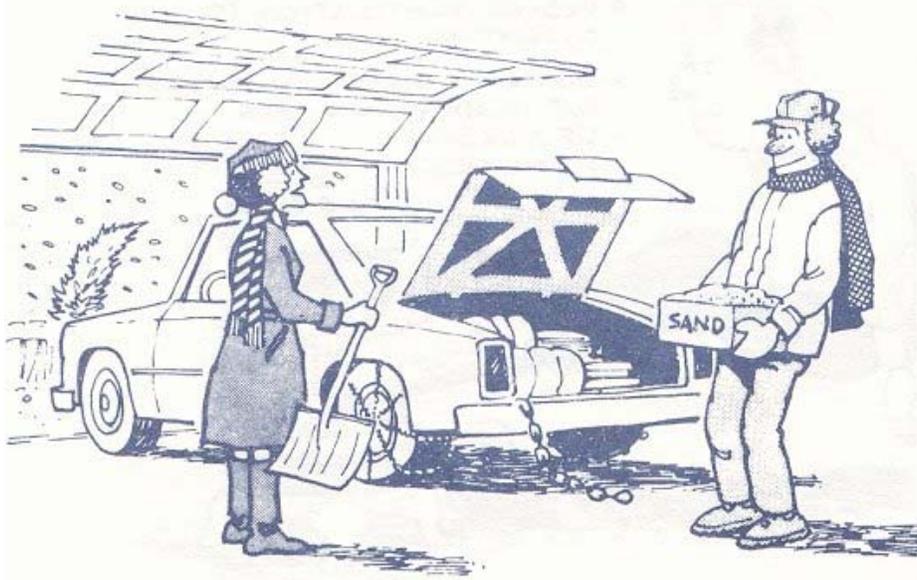
- Several blankets or sleeping bags.
- Rain gear and extra sets of dry clothing, mittens, socks, and a wool cap.
- Extra newspapers for insulation.
- Plastic bags for sanitation.
- Canned fruit, nuts, and high energy “munchies.” Non-electric can opener if necessary.
- Several bottles of water. Eating snow will lower your body temperature. If necessary, melt it first.
- Cans of broth or soup.
- A small shovel, a pocket knife, and small tools, such as pliers, a wrench, and screwdriver.
- A small sack of sand for generating traction under wheels, a set of tire chains, or traction mats.
- Jumper cables.
- A first aid kit and necessary medications.
- A flashlight with extra batteries.
- A candle in a metal can or other fireproof container. While candles are generally not recommended in disaster situations, having one in your car can be a source of heat and light if you are stranded. Proper ventilation is necessary to prevent oxygen starvation. Let some fresh air into the vehicle. Do not go to sleep with candle burning.



- Matches.
- Cards, games, and puzzles. They will be a welcome recreational diversion to help pass the time if you are stuck for several hours.
- A brightly colored cloth to tie to the antenna so the vehicle can be easily located.
- Facial or toilet tissue.
- Gas line deicer and window deicer. Gas line deicer can prevent stalls due to gas line freeze. Window deicer can assist in the removal of accumulated ice on windows.

DID YOU KNOW ?

IF YOU DRIVE IN SNOW, ANTICIPATE BEING MAROONED.
A WINTER STORM SURVIVAL KIT MAY SAVE YOUR LIFE.
THE WISE AVOID DRIVING DURING WINTER STORMS.



Survival Tips If You're Stranded

If your vehicle becomes stalled or stopped, think the problem through, decide what is the best and safest thing to do, and then proceed slowly and with caution. The following tips will see you through the ordeal until help arrives.

- **Stay with your vehicle.** Do not leave the vehicle to search for assistance unless help is visible within 100 yards. Disorientation and confusion come very quickly in blowing snow. Avoid traveling during winter storms. If you must travel and do become stranded, it is better to stay in the vehicle and wait for help. You are more likely to be found in your car and will at least be sheltered there.
- Display a trouble sign to indicate you need help. Tie a brightly colored cloth (preferably red) on the radio antenna and raise the hood (after the snow stops falling).
- Occasionally run the engine to keep warm. Carbon monoxide can build up inside a standing vehicle while the engine is running, even if the exhaust pipe is clear. Experience has shown that running the heater for 10 minutes every hour is enough to keep occupants warm and will reduce the risk of carbon monoxide poisoning and conserve fuel. Turn on the engine for about 10 minutes each hour (or 5 minutes every half hour). Use the heater while the engine is running. Keep the exhaust pipe clear of snow and slightly open a downwind window for ventilation.
- Leave the overhead light on when the engine is running so that you can be seen.
- Do minor exercises to keep up circulation. Clap hands and move arms and legs occasionally. Try not to stay in one position for too long.
- If more than one person is in the car, take turns sleeping. One of the first signs of hypothermia is sleepiness. If you are not awakened periodically to increase body temperature and circulation, you can freeze to death.

DID YOU KNOW ?



DON'T PANIC IF MAROONED IN YOUR CAR DURING A BLIZZARD. YOUR BEST BET IS TO STAY IN THE CAR, UNLESS YOU CAN SEE SAFE SHELTER. RUN THE ENGINE BRIEFLY TO KEEP WARM, BUT OPEN THE WINDOW SLIGHTLY FOR VENTILATION. YOUR DOME LIGHT OR FLASHERS MAY HELP RESCUERS FIND YOU. THE WISE AVOID DRIVING IN WINTER STORMS.

- Huddle together for warmth.
- Use newspapers, maps, and even the removable car mats for added insulation. Layering items will help trap more body heat.
- Keep a window that is away from the blowing wind slightly open to let in air. This is important to prevent carbon monoxide and oxygen starvation should you be using a candle or other type of heating device within the vehicle.
- Occasionally open vehicle windows and doors. Freezing rain and wet snow can completely seal the passenger compartment.
- Watch for signs of frostbite and hypothermia. Severe cold can cause numbness, making you unaware of possible danger. Keep fingers and toes moving for circulation, huddle together, and drink warm broth to reduce risk of further injury.
- Drink fluids to avoid dehydration. Bulky winter clothing can cause you to sweat. Cold dry air will help the sweat evaporate, making you unaware of possible dehydration. When individuals are dehydrated, they are more susceptible to the effects of cold and heart attacks. Melt snow before using it for drinking water. Eating snow lowers your body temperature, increasing risk from hypothermia.
- Avoid overexertion. Cold weather puts an added strain on the heart. Unaccustomed exercise such as shoveling snow or pushing a car can bring on a heart attack or make other medical conditions worse.

Exposure to the Cold - Signs and Treatment

Extreme cold temperatures pose a substantial danger during the winter months. Prolonged exposure to the cold can cause frostbite, hypothermia, or even death. Persons most susceptible to extreme cold are infants and the elderly.

Frostbite is a severe reaction to cold exposure of the skin that can permanently damage fingers, toes, the nose, and ear lobes. Symptoms are loss of feeling and a white or pale appearance to the skin. If these symptoms are apparent, seek medical help immediately. If medical help is not immediately available, slowly rewarm the affected areas. If the victim is also showing signs of hypothermia, always warm the body core before the extremities.

Hypothermia (Low Body Temperature) is a condition brought on when the body temperature drops to less than 95° F. Symptoms include slow or slurred speech, incoherence, memory loss, disorientation, uncontrollable shivering, drowsiness, repeated stumbling, and apparent exhaustion. If these symptoms are detected, take the person's temperature. If below 95° F, immediately seek medical help. If medical aid is not available, get the person into dry clothing, and wrap them in a warm blanket covering the head and neck. Do not give the person alcohol, drugs, coffee, or any hot beverage or food; warm broth is better. Do not warm extremities (arms and legs) first. This drives the cold blood toward the heart and can lead to heart failure.

Winter deaths: Everyone is potentially at risk with the actual threat depending upon individual situations. Recent winter death statistics in the United States indicate the following:

- *Related to ice and snow:* About 70% occur in automobiles; 25% are people caught out in the storm; and the majority are males over 40 years old.
- *Related to exposure to cold:* 50% are people over 60 years old; over 75% are males; and about 20% occur in the home.

Recommended Winter Attire

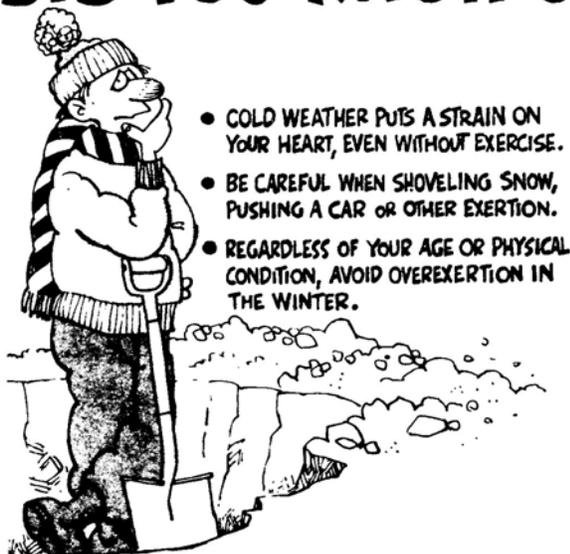
Wear loose fitting, lightweight, warm clothing in several layers (the trapped air between the layers insulates). Layers can be removed to avoid perspiration and subsequent chill. Outer garments should be tightly woven, water repellent, and hooded. Wear a hat (half of body heat is lost through the top of the head). Cover the mouth with scarves to protect lungs from cold air. Mittens, snug at the wrists, are better than gloves. Gloves allow your fingers to cool much faster than mittens do. Try to stay dry. Do not stay outside for extended periods!



Physical Exertion

Shoveling demands heavy physical exertion. The strain from the cold and hard labor may cause a heart attack. Sweating from overexertion can lead to a chill and hypothermia. Seek alternatives to shoveling. Use a snow blower and ice-melting products to help make snow removal easier. Get help from others.

DID YOU KNOW ?



- COLD WEATHER PUTS A STRAIN ON YOUR HEART, EVEN WITHOUT EXERCISE.
- BE CAREFUL WHEN SHOVELING SNOW, PUSHING A CAR OR OTHER EXERCISE.
- REGARDLESS OF YOUR AGE OR PHYSICAL CONDITION, AVOID OVEREXERCISE IN THE WINTER.

If you must shovel, remember to -

- Take it slow - do it carefully.
- Lift small amounts, especially when removing heavy snow, slush or ice.
- Use proper posture to prevent back strain. Keep your back straight, and lift gently from the knees and hips. Stop if you feel pain or become short of breath.

Make Them Golden Years, Not Frozen Years!

As you get older, your body becomes less able to respond to long exposure to heat or cold. In cold weather, some older people may develop accidental hypothermia (hi-po-thur-mee-uh), a drop in internal body temperature that can be fatal if not detected and treated properly.

Accidental Hypothermia

Hypothermia is a condition of below normal body temperature - typically 95° F or under. Accidental hypothermia may occur in anyone who is exposed to severe cold without enough protection. However, some older people develop accidental hypothermia after exposure to relatively mild cold.

Those elderly most likely to develop accidental hypothermia are: the chronically ill, the poor who are unable to afford enough heating fuel, and those who do not take the normal steps to keep warm. The small number of aged persons whose temperature regulation is defective face the greatest danger. For unknown reasons, these people do not feel cold or shiver, and thus cannot produce body heat when they need it. It is interesting to note that many people who have “felt cold” for years may actually have a lower risk of accidental hypothermia.

The only sure way to detect hypothermia is to use a special low-reading thermometer, available in most hospitals. A regular thermometer will do as long as you shake it down well. If your temperature is below 95° F or does not register, get emergency medical help. Other signs to look for include: an unusual change in appearance or behavior during cold weather; slow, and sometimes irregular, heartbeat; slurred speech; shallow, very slow breathing; sluggishness; and confusion. Treatments consist of re-warming the person under a doctor’s supervision, preferably in a hospital.

Protective Measures

There is no strong scientific basis for recommending room temperatures for older people. However, setting the heat at 65° F in living and sleeping areas should be adequate in most cases, although sick people may need more heat.

Measures you can take to prevent accidental hypothermia include:

- Dress warmly even when indoors, eat enough food, and stay as active as possible.
- Because hypothermia may start during sleep, keep warm in bed by wearing enough clothing and using blankets.
- If you take medicine to treat anxiety, depression, nervousness, or nausea, ask your doctor whether the medication might affect the control of body temperature.
- Ask friends or neighbors to look in on you once or twice a day, particularly during a cold spell. See if your community has a telephone check-in or personal visit service for the elderly or homebound.

Contact for Assistance

Anyone trying to save on fuel costs can protect against hypothermia by dressing warmly and heating only one or two rooms of the home.

There are government-funded programs to help low-income families pay high energy bills, weatherize (insulate) their homes, or even get emergency repairs of heating/cooling units. Your local community action agency or area agency on aging should be able to direct you to the proper source of assistance.

This page left intentionally blank

Protection for Pets

Winter poses special risks to pets. Give your pet a safer, healthier cold weather season by following these tips:

- Keep indoor pets in a dry-warm area free of drafts. Elevate your pet's bed off the floor.
- Provide outdoor dogs or cats with a dry, insulated pet house or shelter out of the wind. Staying warm demands extra calories, so feed your pet accordingly when temperatures drop. Bring your pet inside if the wind chill or other weather conditions become severe.
- Remove ice, salt, and caked mud from your pet's paws and coat at once. Contact your veterinarian immediately if you suspect your pet has frostbite. Frostbitten skin may turn reddish, white, or gray, and it may be scaly or sloughing.
- Cats and kittens often nap on car engines. Knock on the hood or honk the horn, then wait a few minutes before starting the car.
- Pets like the smell and taste of antifreeze, but even a small amount can kill them. Thoroughly clean up spills at once. Tightly close containers and store them where pets cannot get to them.
- Holiday paraphernalia can hurt pets. Cover or tack down electrical cords. Keep tinsel and glass ornaments out of reach. Read warnings on items like spray-on snow. Never put ribbon around a pet's neck or allow it to play with plastic or foil wrappings or six-pack beverage holders.
- Keep your pet on its regular diet. Holiday treats, such as chocolate and bones, can be harmful or toxic.
- Many plants, including Christmas rose, holly, mistletoe, philodendron, poinsettia, and dieffenbachia - are toxic to pets. Keep them out of your pet's reach.
- Always have fresh, clean water available.



Match Up

Below are a few items that you should have in your car if you travel during a winter storm.

Draw a line between the items that would match up.



Word Search

Winter storms can last several days and can be accompanied by high winds, freezing rain, snow and cold. Snow can be lots of fun to play in but too much at once can be dangerous. Remember when you play outside to bundle up in lots of clothes and wear a hat and mittens. Can you find the words that go with winter storm safety?

A	F	R	O	S	T	B	I	T	E	M	I	C	E	N	B	V	C	X
T	S	D	F	H	G	H	J	K	L	F	R	E	E	Z	I	N	G	Z
E	P	D	A	D	E	V	X	O	I	U	E	R	I	Y	U	E	W	Q
M	H	R	C	Z	V	A	N	B	C	R	C	O	A	T	M	B	A	H
P	E	I	O	W	A	E	T	N	L	U	I	P	I	Y	W	L	C	A
E	T	Z	C	E	C	G	N	K	Y	I	Y	Z	S	U	T	A	V	T
R	U	Z	A	A	H	K	V	D	R	X	Z	I	X	O	R	N	H	N
A	L	L	T	T	Y	P	O	U	R	O	R	Z	B	J	D	K	Y	T
T	L	E	H	H	A	N	E	F	J	N	W	Q	A	T	S	E	P	R
U	I	H	Z	E	M	E	R	G	E	N	C	Y	Z	R	A	T	O	S
R	H	B	P	R	H	J	D	F	Y	S	S	R	J	D	D	S	T	A
E	C	U	I	R	G	B	H	H	T	B	R	T	H	F	I	O	H	S
Z	D	M	Y	A	F	F	R	O	A	F	C	C	O	L	D	A	E	E
J	N	T	D	D	D	G	O	A	S	D	F	R	G	H	M	R	R	I
O	I	G	H	I	S	B	Z	S	F	E	V	G	B	N	I	N	M	R
B	W	K	G	O	A	U	T	D	N	G	T	R	Q	W	T	Y	I	E
L	S	I	F	J	K	L	I	L	X	O	I	K	D	S	T	Q	A	T
O	S	C	A	R	F	M	Y	T	Y	S	W	U	G	S	E	W	T	T
T	A	S	D	C	B	N	S	G	F	J	U	W	S	R	N	I	J	A
M	R	O	T	S	X	T	F	I	R	S	T	A	I	D	S	U	H	B

Batteries
Boots
Drizzle
Freezing
Heat
Mittens
Storm
Wind chill

Blankets
Coat
Emergency
Frostbite
Hypothermia
Scarf
Temperature

Blizzard
Cold
First aid
Hat
Ice
Snow
Weather radio

Word Search Answer Key

A	F	R	O	S	T	B	I	T	E	M	I	C	E	N	B	V	C	X
T	S	D	F	H	G	H	J	K	L	F	R	E	E	Z	I	N	G	Z
E	P	D	A	D	E	V	X	O	I	U	E	R	I	Y	U	E	W	Q
M	H	R	C	Z	V	A	N	B	C	R	C	O	A	T	M	B	A	H
P	E	I	O	W	A	E	T	N	L	U	I	P	I	Y	W	L	C	A
E	T	Z	C	E	C	G	N	K	Y	I	Y	Z	S	U	T	A	V	T
R	U	Z	A	A	H	K	V	D	R	X	Z	I	X	O	R	N	H	N
A	L	L	T	T	Y	P	O	U	R	O	R	Z	B	J	D	K	Y	T
T	L	E	H	H	A	N	E	F	J	N	W	Q	A	T	S	E	P	R
U	I	H	Z	E	M	E	R	G	E	N	C	Y	Z	R	A	T	O	S
R	H	B	P	R	H	J	D	F	Y	S	S	R	J	D	D	S	T	A
E	C	U	I	R	G	B	H	H	T	B	R	T	H	F	I	O	H	S
Z	D	M	Y	A	F	F	R	O	A	F	C	C	O	L	D	A	E	E
J	N	T	D	D	D	G	O	A	S	D	F	R	G	H	M	R	R	I
O	I	G	H	I	S	B	Z	S	F	E	V	G	B	N	I	N	M	R
B	W	K	G	O	A	U	T	D	N	G	T	R	Q	W	T	Y	I	E
L	S	I	F	J	K	L	I	L	X	O	I	K	D	S	T	Q	A	T
O	S	C	A	R	F	M	Y	T	Y	S	W	U	G	S	E	W	T	T
T	A	S	D	C	B	N	S	G	F	J	U	W	S	R	N	I	J	A
M	R	O	T	S	X	T	F	I	R	S	T	A	I	D	S	U	H	B

Batteries
Boots
Drizzle
Freezing
Heat
Mittens
Storm
Wind chill

Blankets
Coat
Emergency
Frostbite
Hypothermia
Scarf
Temperature

Blizzard
Cold
First aid
Hat
Ice
Snow
Weather radio



Disaster Math

On Tuesday, 12 inches of snow fell. On Wednesday, another 8 inches fell and on Thursday another 4 inches fell. How much snow was on the ground at the time?

___ 42 inches

___ 24 feet

___ 24 inches

___ 20 inches

On Friday, 2 inches melted and on Saturday another 3 inches melted. Now how much snow was on the ground?

___ 29 inches

___ 27 inches

___ 18 inches

___ 19 inches

Freezing happens at 32 degrees. If the weather forecaster says that Tuesday will be 8 degrees above freezing, what temperature will it be?

___ 40 degrees

___ 24 degrees

___ 30 degrees

___ 8 degrees

If the weather forecaster says that Wednesday will be 9 degrees below freezing, what temperature will it be?

___ 41 degrees

___ 23 degrees

___ 32 degrees

___ 9 degrees

Wyoming's County Emergency Managers

County	Phone Number
Albany	(307) 721-5302
Big Horn	(307) 548-6153
Campbell	(307) 686-7477
Carbon	(307) 328-4546
Converse	(307) 358-6880
Crook	(307) 283-2390
Fremont	(307) 856-2374
Goshen	(307) 532-1672
Hot Springs	(307) 864-4649
Johnson	(307) 684-0964
Laramie	(307) 633-4333
Lincoln	1-800-442-9001
Natrona	(307) 235-9205
Niobrara	B/H-PH: 334-2674
Park	(307) 527-8761
Platte	(307) 322-2140
Sheridan	(307) 674-1985
Sublette	(307) 367-2284
Sweetwater	(307) 352-6820
Teton	(307) 733-9572
Uinta	(307) 783-0327
Washakie	(307) 347-3331
Weston	(307) 468-2287
Wind River Reservation	(307) 332-3164

The information in this booklet represents the most current information at its publication date. However, research and studies into winter survival, hypothermia and injuries due to cold are ongoing. This information may not represent the most current information in this dynamic area of study. The Wyoming Office of Homeland Security/Emergency Management Agency and the State of Wyoming assume no liability for your use or reliance upon any of the information contained in this book.

Websites for Additional Information

American Red Cross - <http://www.crossnet.org/>

Educators' Information - <http://www.redcross.org/services/disaster/eduinfo/>

Disaster Safety - <http://www.redcross.org/services/disaster/keepsafe/>

Preparedness Information for Senior Citizens -

<http://www.redcross.org/services/disaster/beprepared/seniors.html>

Disasterhelp.gov - <http://www.disasterhelp.gov/>

Federal Emergency Management Agency (FEMA) - <http://www.fema.gov/>

FEMA for Kids - <http://www.fema.gov/kids/>

National Fire Protection Association - <http://www.nfpa.org/Home/index.asp>

National Weather Service - <http://www.nws.noaa.gov/>

Education Resources - <http://nws.noaa.gov/om/outreach/educatio.htm>

Weather Safety Brochures - <http://nws.noaa.gov/om/brochures.shtml>

Winter Brochure - <http://nws.noaa.gov/om/brochures/winterstorm.pdf>

Winter Weather Awareness - <http://nws.noaa.gov/om/winter/index.shtml>

National Weather Service - Cheyenne - <http://www.crh.noaa.gov/cys/>

National Weather Service - Rapid City - <http://www.crh.noaa.gov/unr/>

National Weather Service - Riverton - <http://www.crh.noaa.gov/riw/>

National Weather Service - Billings - <http://www.wrh.noaa.gov/billings/index.shtml>

National Weather Service - Salt Lake City - <http://www.wrh.noaa.gov/saltlake>

The Weather Channel - <http://www.weather.com/index.html>