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## Safe, Safer, Safest! *Be Aware of Woodland Hazards*

**W**hat do you need to know about being safe in the woods? The best defense against safety hazards is to know what they are and how to reduce them when you can.

### Staying Found

Getting lost on a few acres is easier than it seems. If your property is a small piece of a bigger woodland, it is best to learn how to orient yourself and teach other members of the family how to do the same. Investing the time and effort to learn how to use a map and compass will give you a skill useful for a lifetime. If you decide to do any work on your property, it will also allow you to accurately mark your own property boundaries, thus saving you from paying a professional surveyor to do the job.

### Chainsaw Safety

Cutting trees can kill you. In fact, logging is one of the most hazardous professions, with thousands of injuries occurring nationwide every year. Even professional loggers and woodsmen who have cut wood for decades get hurt and killed every year. Don't let that happen to you. Even if you've been using a chainsaw for years, new cutting methods and other safety tips significantly decrease your chances of getting hurt. According to logging professionals, hands-on safety courses are the best way to learn. Books and videos are a distant second. Professional chainsaw dealers often have safety videos for rent or sale that provide a very basic introduction or a useful refresher.

At the very least, a chainsaw should have the following:

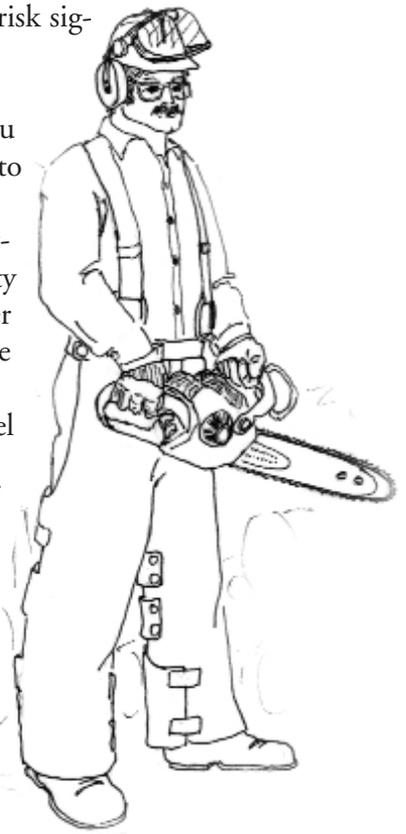
- ✦ A chain brake
- ✦ Enough room in the handle and grip area to control the saw if it kicks back
- ✦ A low profile safety chain on the bar
- ✦ A bar no longer than 16 inches

People often think a longer bar makes a saw faster and stronger, but all it really does is add unnecessary weight. A well-maintained small chainsaw engine with a short bar is all anyone but a professional logger really needs. Larger saws only slightly decrease cutting time and add weight that makes them more difficult to control, thus increasing the safety risk significantly.

There is a lot to think about when you go out in the woods to cut. Have you maintained the saw recently? Do you have safety protection like leather gloves, a hard hat, eye and ear protection, kevlar chaps, and steel

### *Chainsaw Safety:*

*Hardhat  
Face Screen  
Ear Protection  
Work Gloves  
Chaps  
Steel Toe Boots  
with  
Non-Skid Soles*



## HOW TO IDENTIFY HAZARD TREES

- ❖ Will a tree hit people, cars, buildings, or power lines if it falls?
- ❖ Has the tree lost a lot of branches lately?
- ❖ Is the tree dead? Does it have a dead top or branches? Snags are often left for nesting wildlife, but it is important that they not be a threat to humans.
- ❖ Are there deep, open cracks in the trunk, trunk crotch, or branches? Cracks eventually turn into breaks.
- ❖ Has the tree been topped (*the tallest, leading branches cut off*) or tipped (*the ends of branches cut off*) in the past? If so, sprouts may grow rapidly from the top or sides. As a result, the overall tree may be weakened while the new growth increases the danger by making the tree top heavy.
- ❖ Has the tree been damaged by a storm? Lightning can kill the roots.
- ❖ Do shelf mushrooms grow from the root area? Fungus is an indication of rot. The rest of the tree may still look healthy while the roots are starting to weaken. The tree may fall unexpectedly as a result.
- ❖ Do shelf mushrooms grow from the trunk? Are there black cankers or hollow spots? Entire living branches can unexpectedly pull out from a rotting trunk.
- ❖ Is the tree leaning to one side, or are there considerably more branches on one side of the trunk? The weight of them can pull the tree over, if it is already weakened.

toed boots? Look around. Do you have a good escape route if the tree doesn't fall the way you plan? Or is there brush or other trees that might trip you up? Is the wind blowing? How strong? From what direction? How does the tree lean? Does it have more branches on one side or the other? Do other trees block the direction you want the tree to fall? All of these things will determine how to safely take down a tree. Dead or dying trees are particularly difficult to cut and may require a different technique to be felled safely.

One last word on chainsaw and cutting safety: No matter how much you know about chain saws, reviewing safety information will help keep your mind on staying safe when you go out in the woods to cut.



*Hazard Tree -  
Dangerous  
broken limb -  
A Widow(er)  
Maker*

### Hazardous Trees

Standing dead trees, or snags, provide excellent wildlife habitat, but damaged or dead trees located in areas where they endanger people or property should be removed. Hazard trees can be very unpredictable; branches may fall unexpectedly or the entire tree may fall without notice. Usually, hazard trees can be identified and removed before an accident occurs.

Sometimes, working among hazard trees is unavoidable. If you work among wind or ice damaged trees, wearing a hard hat may save you if a branch falls unexpectedly.

### Keeping Healthy Trees from Becoming Hazard Trees

Hazard trees occur naturally, but healthy trees sometimes become hazards

due to improper pruning. For example, cutting the tops off big trees or removing the tips of big branches can weaken a tree. Proper pruning will keep a tree healthy.

Trees can also easily be damaged during construction of buildings or woods roads and trails, allowing insects or disease to begin to weaken or kill the tree. If the roots of a tree are damaged when a new lawn is being put in, for example, the tree may appear healthy, but be weakened at or below ground level. The worst hazard to trees during construction is filling in around trees and over root systems. As little as four inches of new soil can smother the roots. The practice of leaving a small hollow around the base of the tree is not adequate, because many fine roots spread far out from the trunk. Trees with weakened root systems can unexpectedly topple or snap off at the base in severe wind storms.

If you plant new trees, make sure the tree species suit the soil and water conditions of the site. To do this, you must know what trees will grow well on your site and also be sure they won't become hazardous when they grow larger. Your local garden center can give you some direction, but for professional assistance contact your community forester at the Maine Forest Service, a landscape contractor or arborist, or Cooperative Extension for more information.

### **Dig Safe!**

If you decide to plant a tree or landscape your yard, state and federal law requires that you notify utilities so you won't accidentally dig into an underground cable. Call the toll free number at the "Dig Safe" center and they will contact the appropriate utilities for you. The utilities will then come out and mark the location of any underground facilities. 888-DIG-SAFE.

### **Wind and Ice Hazards**

Avoid going in the woods during ice storms or high winds. Ice weighs trees down, causing some branches and tops to snap unexpectedly. Ice damaged trees, or trees trapped and bent over by the weight of trees that fell on them, are especially hazardous to cut. It is wise to leave them to experienced wood cutters trained in felling hazard trees.

Strong winds can blow branches, tops, and entire trees over unexpectedly. If you plan to work in the woods, wait for a calmer day.

### **Fire Danger: What You Can Do to Decrease the Risk**

Is wildfire something home owners should be concerned about? Could the wildfires that burned over 200,000 acres and devastated nine Maine communities in 1947 happen again?

Extreme drought conditions combined with the lack of a comprehensive fire management planning contributed to the severity of the 1947 fires. The Maine Forest Service and municipalities manage wildfires today with increasingly sophisticated tools, but new factors have developed since the week Maine burned in 1947 that make wildfire a danger to land owners who have woods on their property.

New residential development is on the rise in central, southern, and coastal Maine. Most of these houses are being built in the woods. While wooded home sites offer privacy, they also come with certain risks. House fires in wooded areas cause unique problems for small town and rural fire departments for several reasons. Often, it takes longer for firefighters to reach homes on the outskirts of town. Driveways too narrow for fire engines, or without enough room for them to turn around, can add to the delay. There is also the possibility that a house fire can become a wildfire, particular-



ly in a dry year. Wildfires also tend to be more costly and dangerous to fight and can easily exhaust the fire rescue budget of small towns.

### **How to Protect Your Home from Wildfire**

Regular maintenance, such as keeping gutters clear of debris, storing flammable material away from inhabited structures, cleaning and installing screens on chimneys, and removing flammable vegetation near the house will go a long way towards fire protection. Removing fire hazards from inside the home, such as improperly stored camping stove fuel or faulty wiring, is also important. Well-maintained smoke alarms are a requirement for a safe house. If you are building a new home in the woods, it is important to create a driveway wide enough for fire engines to enter and turn around.

### **Backyard Burning**

Winds can create a hazard if you are burning backyard brush, since fires tend to create their own wind by sucking up nearby oxygen to fuel the flames. Many home own-

ers start burning brush in a very light wind and end up calling the fire department when the fire gets out of control. A common comment is that “the wind just came out of nowhere.”

Everyone is required by law to get a signed burning permit for any open burning. If you don't have one, you will be fined — and you'll also be liable for damage to adjacent properties as well as the cost of putting the fire out. Permits are available from the local town fire warden. If you live in an unorganized town or area, you can call the local Maine Forest Service office or the central number. They will direct you to the telephone number of a local contact for a permit.

Valuable time may be lost in trying to put out a backyard fire that gets out of control and becomes a grass fire or a woodland fire. The most important thing to do is get out of the area and get help as quickly as possible.

More information on how to reduce the risk of fire in and around your home, and information on burning permits is available from the Fire Control Division of the Maine Forest Service at 800-750-9777.

## RESOURCES

### Orienteering

MacGown, R.H. 1981. *Yankee Woodlot: Basic Mapping*. Information on base maps, determining directions, reading distances and bearings, measuring distances and creating maps of woodlots or acreage includes additional reading and supply source lists. University of Maine Cooperative Extension. 16 pp. Bulletin #7007. \$2.50. To order: 800-287-0274 or the Internet at <http://www.umext.maine.edu>

Malone. *Staying Found: The Complete Map and Compass Handbook*. Offers a simple system for learning map and compass use that makes it easy to understand what you are doing and why. \$10.95. Available from Acorn Naturalists (# B-3035). To order: 800-422-8886 or the Internet at <http://www.acornnaturalists.com>

*Topographic Maps*. These geographically detailed maps are available from many outdoor stores. All maps in the state are also available by mail. To order: DeLorme Map Store, 2 DeLorme Drive, P.O. Box 298, Yarmouth, ME 04096 or 207-846-7100.

*Using a Map and Compass*. Straightforward information with illustrations. Yankee Woodlot Series. University of Maine Cooperative Extension. Bulletin #7127. Free. Contact: 800-287-0274 or the Internet at <http://www.umext.maine.edu>

*Where is it? Deeds and Boundaries*. How to find your property boundaries using your deed and on-the-ground clues. Yankee Woodlot Series. University of Maine Cooperative Extension. Bulletin #7077. Free. Contact: 800-287-0274 or the Internet at <http://www.umext.maine.edu>

### Chainsaw Use and Safety

*Accident Emergencies*. University of Maine Cooperative Extension. 2 pp. Bulletin #7002. Free. Contact: 800-287-0274 or the Internet at <http://www.umext.maine.edu>

*Chainsaw Safety Information*. Internet site at <http://muextension.missour.edu/xplor/agguide/s/agengin/g01958>

*Chainsaw Safety Training*. Video. \$35.00. Contact: Northern Woods Safety Foundation, P.O. Box 557, Jackman, ME 04945.

*Chainsaw Safety Information and Training*. Contact: Small Woodland Owners Association of Maine (SWOAM), P.O. Box 296, Augusta, ME 04332 or 207-626-0005. E-mail at [swoam@mint.net](mailto:swoam@mint.net)

*Chain Saw Safety*. University of Maine Cooperative Extension. 4 pp. Bulletin #2353. Free. Contact: 800-287-0274 or the Internet at <http://www.umext.maine.edu>

### Proper Pruning for Healthy Trees

*The Profit in Pruning*. 1986. Forest Fact Sheet. Department of Conservation, Maine Forest Service. Illustrates proper pruning techniques and the results of good pruning. To order: 800-367-0223 or call your local field forester.

*How to Prune Trees*. Illustrated Brochure. USDA, Forest Service, Northeastern Area, State and Private Forestry. Report Number NA-FR-01-95. Contact: Maine Forest Service Urban and Community Forester at 800-367-0223.

*Pruning Standards for Shade Trees*. 1988. National Arborist Association. Offers terminology, diagrams and establishes the four classes of pruning. Contact: National Arborist Association, The Meeting Mall Place, Rte. 101, P.O. Box 1094, Amherst, NH 03031-1094 or 603-673-3311.

### Hazard Tree Identification and Prevention

*Call Dig Safe Before You Dig. It's the Law!* Brochure outlining your legal responsibilities to contact utilities before you do any digging and the safety reasons behind the law. Contact: 888-DIG-SAFE or 888-344-7233.

Miller, Nancy L., et al. 1993. *Protecting Trees from Construction Damage, A Homeowner's Guide*. NR-FO-6135-S. Minnesota Extension Service. Contact: Minnesota Extension Service, Distribution Center, 20 Coffey Hall, 1420 Eckles Ave., St. Paul, MN 55108-6064.

Shigo, Dr. Alex L. 1985. *Homeowner's Guide for Beautiful, Safe, and Healthy Trees*. USDA Forest Service, Northeastern Forest Experiment Station. Report Number NE-INF-58-84. Contact: 603-868-5710.

Shigo, Dr. Alex L. *Tree Hazards, 13 Questions That Could Save a Life. Maybe Yours!* Contact the publisher: Shigo and Trees, Associates, 4 Denbow Rd., Durham, NH 03824 or 603-868-7459.

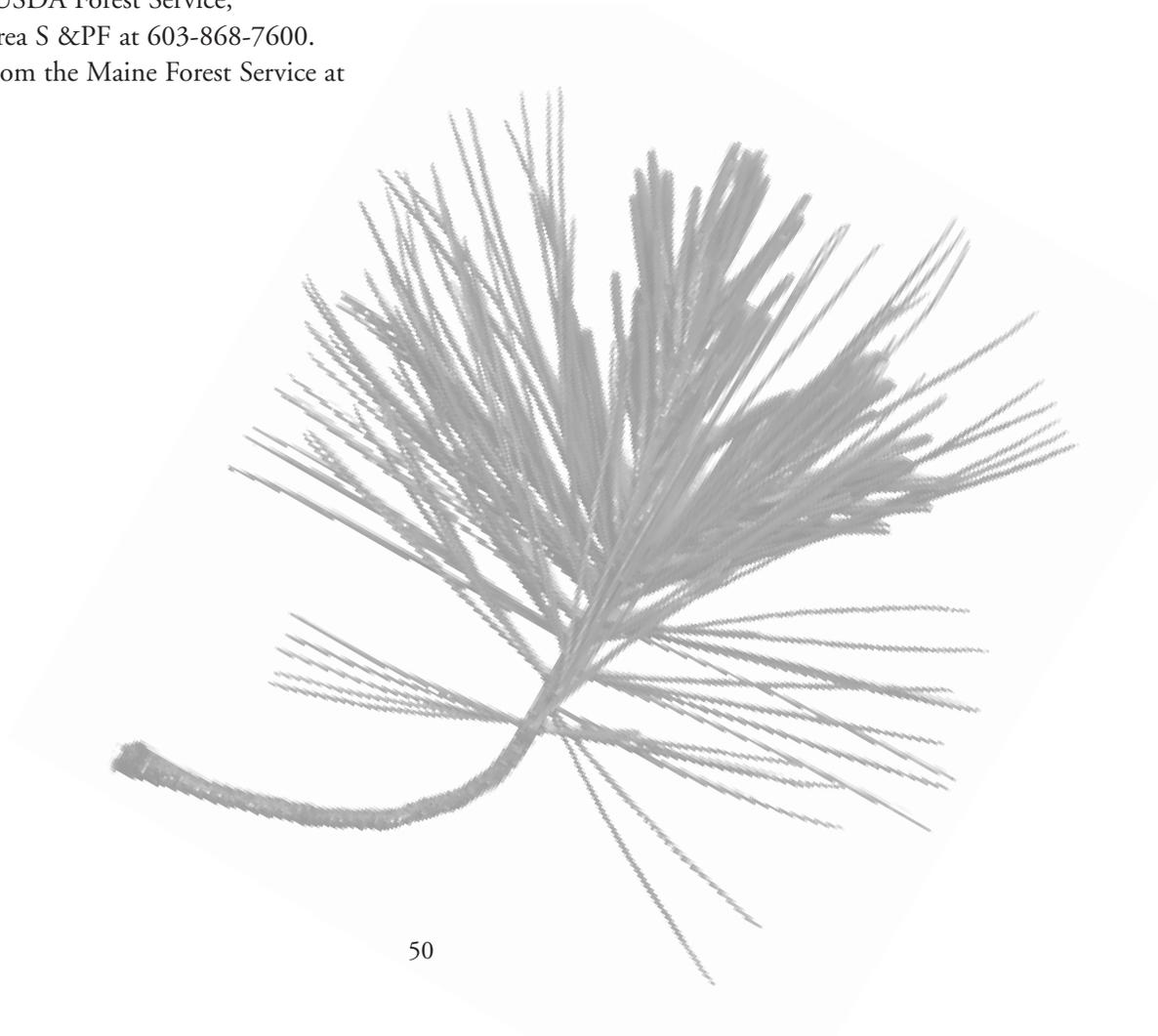
*Wildlife Habitat/Hazard Tree Decision Model*. Informative pamphlet that shows you how to decide whether it is best to keep a tree for wildlife purposes or cut it down for safety reasons. Contact: USDA Forest Service, Northeastern Area S &PF at 603-868-7600. Also available from the Maine Forest Service at 800-367-0223.

## **Fire Hazard Prevention**

*Common Sense Fire Protection Standards for Real Estate Development in Rural Maine*. Winter 1991. Fire Control Division of Maine Forest Service, Department of Conservation. To order: Fire Control Division of Maine Forest Service at 800-750-9777.

*State of Maine Rules and Guidelines for Open Burning*. 1995. Brochure. Department of Environmental Protection and Department of Conservation. To order: Fire Control Division of Maine Forest Service at 800-750-9777.

*Wildfire is the Enemy of Your Forest Home*. Fire Control Division of Maine Forest Service, Department of Conservation. To order: Fire Control Division of Maine Forest Service at 800-750-9777.



## Finding Your Way in the Woods: *Basic Map and Compass Skills*

Your big backyard is a great place to learn map and compass skills that will be useful for a lifetime of exploring, whether you are in the neighborhood woodlot or the Great North Woods. And it's a lot of fun to learn as a family.

This is a basic introduction to map and compass skills. See the Resources list at the end of *The Woods in Your Backyard: Safe Safer Safest!* for more in-depth instruction.

Once you learn basic map and compass skills, you'll also be able to accurately map your property and mark your property boundaries — an essential step if you plan to do any woodland projects!

### TOOLS

✿ A compass. Get one that can be adjusted for declination. The inexpensive Silva brand compass is available at most outdoor stores for ten dollars or so. Two or three people should be able to share one compass. If you have more people, you'll need more than one.

✿ Small notepad and a pencil.

#### Optional:

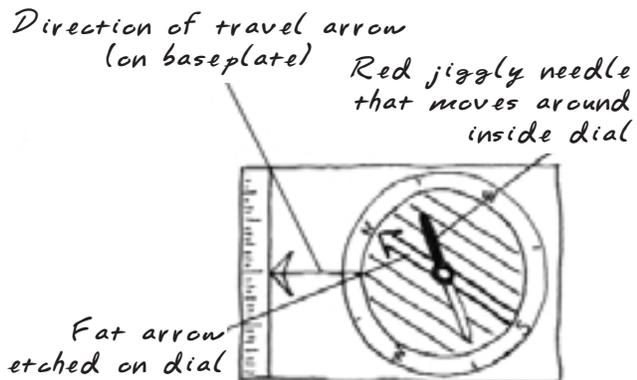
✿ A topographic map of your area. This will allow you to read the land. They are available at most outdoor stores.

### DOING THE ACTIVITY

**Time Frame: 1 hour.**

#### Step 1: Basic Compass Skills

1. Start out in the backyard next to the bird bath or a corner of the house (*starting point*).
2. The compass will have a jiggly needle that moves around inside a round dial. This is the magnetic needle whose (*usually*) red end points in a northerly direction. The other end, which is usually white, points in a southerly direction. There is also a fat arrow etched on the round dial that only moves when you turn that dial. You can ignore the fat arrow for now.
3. A long skinny arrow is in the middle of the flat, rectangular base plate. It points towards the narrow edges of the plate. This is the Direction of Travel arrow. (*It's very obvious on some compasses and hard to find on others. This is the only arrow on a compass that does not move. It is imprinted on the base plate.*)
4. Now, hold the compass so it is flat in the palm of your hand, hold your arm out straight and aim the Direction of Travel arrow at some recognizable landmark in the distance, like a pine tree among a bunch of hardwoods. If you are at the bird bath, you don't want to aim at the bird house twenty feet away; it's too close.



Make sure the compass stays flat in the palm of your hand; you won't get an accurate reading if you hold it (or your arm) at an angle.

5. Okay, you're pointing at the pine tree. Now, turn the round dial until the fat arrow etched on the dial is aligned with the red end of the jiggly magnetic needle inside the dial. Make sure the pointy arrow "head" of the fat needle (*not the blunt arrow "tail"*) is aligned with the red end of the jiggly magnetic needle.
6. Read the degrees on the dial where it meets the skinny direction of travel arrow on the base plate. That number is called an azimuth. Write that azimuth down on your notepad.
7. Now walk to the recognizable landmark (*the pine tree in our example*), hold your compass out in front of you and turn your whole body (*not just your arm*) very slowly, until the red magnetic needle lines up with the fat arrow on the dial again. Look down the skinny Direction of Travel arrow, sight on a new landmark in the line of sight and walk towards it.
8. If you want to go back to the starting point, turn the dial 180 degrees. Say you were initially following an azimuth of 95 degrees (*you can tell the azimuth by where the numbers on the dial meet the Direction of Travel arrow*). Turn the dial 180 degrees (*to 275 degrees*), then turn your whole body until the fat arrow on the dial matches up with the jiggly red magnetic needle inside the dial. Without moving the jiggly arrow out of alignment with the fat arrow, aim your Direction of Travel arrow at a landmark, walk until you reach the landmark, then repeat until you are back at your starting point.

Suppose you get turned around when hunting or hiking in the woods. Even this basic knowledge will allow you to take a compass out of your pocket, set a direction and stick to it. If you see a landmark in the distance that you recognize — like a lake, mountain, or radio tower — you can take a reading to it, set the azimuth, and work your way towards it in steps by sighting on a closer landmark in the same azimuth (like a tree), walking to it, and repeating this until you reach your destination.

## Step 2: Using a Map and Compass

The magnetic needle of the compass points in a northerly direction, but it doesn't point exactly north. It points to a heavily magnetized rock formation north of Hudson Bay, which is south of the North Pole. When you strike out across your woods (*as outlined in Step 1*), this really doesn't matter. When you use a map or follow a deed, it does. The correction factor between the Hudson Bay rocks and the North Pole varies depending on where *you* are located. This correction factor is called the **declination**, and it is undoubtedly the most confusing thing about using a compass.



*Using map and compass*

In Maine, the declination is anywhere from 17 degrees to 22 degrees west. The declination is always marked on a topographic map, usually in the right hand corner on the bottom. It is two arrows that look like the hands of a clock. The declination number of degrees will be noted between the "hands".

1. Take a look at the topographic map and acquaint yourself with it. Do you see features you recognize? Can you actually find your house as one of the little black squares on the map? (*Many topographic maps haven't been revised since the 1950's, so don't be surprised if you don't*). Once you see something you recognize (*and can physically get yourself to*), look at the map and find a distant landmark you would like to reach using the map and compass. It might be a pond or wetland, a field, or another road.

2. Using a ruler or other straight edge, draw a pencil line on the map from the point you recognize (*a*) to the place you want to go (*b*).
3. With the direction of travel arrow pointing towards (*b*), place the long edge of the base plate of your compass along the line you drew on the map.
4. Ignore the red jiggly magnetic needle. Turn the dial until the fat arrow on the dial (*and all the parallel lines etched on the dial housing*) line up with north on the map.
5. Look around for the declination information. If it is a USGS topographical map, it will be there. (*Most maps are not based on magnetic north, but on true north, so you will need to correct for declination*).
6. Now, subtract the declination from the reading on your dial that lines up with the direction of travel arrow. For example, say you are going from your house to a pond a mile away. After doing the last five steps in this set of instructions, you note that the direction of travel points to 160 degrees. You look in the corner of the map and see the declination is 18 degrees West. You subtract 18 degrees from 160 and come up with 142 degrees (*your azimuth*). Keep ignoring the jiggly red needle, and turn the dial until 142 degrees lines up with the Direction of Travel arrow on the base plate.

Note that the declination would be east in Washington state, not west as it is in Maine. On the west coast, you add the declination instead of subtract it.

Also note that some compasses have a setting for declination, so you don't have to do the math every time you change your direction of travel as long as you are still in an area with the same declination.

7. Take yourself physically to point (*a*). This is your starting point. Write down your azimuth in case the dial somehow gets moved. (*In the above example, the azimuth is 142 degrees*).
8. Now, hold the compass out flat in the palm of your hand and then turn your whole body until the jiggly red magnetic needle lines up with the fat arrow on the dial. Look in the Direction of Travel, sight on a tree or rock in the distance, and walk to it.
9. Repeat step 8 until you reach point (*b*), your finishing point.
10. To go home, turn the dial 180 degrees and repeat step 8 until you get back to your starting point (*a*).

## RELATED ACTIVITIES

### Mapping Your Land

Learning how to read a deed, read topographic maps, use a compass, and create a map for your own land is a lot like a treasure hunt based on a few clues and the skills you learn.

The town office can provide a photocopy of the town tax map where your property is located. Some town offices also have information available on the Internet.

Your property deed will provide some ideas about how to locate your boundaries, including locations of iron posts or trees with blazes (*markings made by an ax, usually at eye level or above*). However, old deed descriptions are often vague. Copies are available at your county Registry of Deeds office. Topographical maps that show streams, elevation changes, and other features can be very helpful, too. A good outdoor store will help you find the topographic map you need.