

Appalachian Mountain Club



MOUNTAIN LEADERSHIP SCHOOL

STUDENT MANUAL

AMC Outdoor Leader Handbook Table of Contents

Leaders and Groups

Introduction	2
Leaders and Groups	3
Leadership Styles	4
Participant Roles	6
Adapting Leadership Styles to Participant Roles	8
Group Life Cycle	9
Decision Making	14
Role Plays and Playing a Role (MLS specific)	19
Icebreakers and Closing Exercises	21

Trip Planning and Management

Introduction	24
Routes and Trip Plans	25
Screening Participants	27
Pre Trip Planning Checklist	30
Trip Management	32
Time Management	35
MLS Equipment List	36

Leave No Trace & Backcountry Ethics

Introduction	42
Principles of Leave No Trace	43
Applying the Principles of Leave No Trace	45
Human Waste and Hygiene	51
Using Backcountry Regulations As Your Guide	54

Backcountry Leadership Skills

Map and Compass	56
Nutrition and Menu Planning	60
Kitchen and Stove Safety	63
Water Treatment	65
Weather	67
Lightning	70
Lost and Alone	73
First Aid and Accident Scene Management	75
Prevention and Self-Reliance	77
Hyperthermia and Hypothermia	80
SOAP Note	84

AMC Outdoor Leader Handbook Credits and Sources	85
---	----

Introduction

Leadership is the association between an individual (the leader) and a group of people sharing a common interest or goal, with the leader directing the group to behave in a certain way. One of the leader's most important functions is to influence the members of the group to work together for the benefit of all. In the course of many outdoor activities, a group of people working together will be able to accomplish much more than one person acting alone—and the activity will be safer and more enjoyable. The leader's ultimate responsibility is to the group as a whole, rather than to himself or herself or to his or her friends.

When we address the issue of outdoor leadership, we must consider the characteristics of the leader and group members; the outdoor environment in which the activity takes place; and the group's objectives for the activity. Also, it is important to recognize that although an individual may be an effective leader in one situation, he or she may not be effective in others. For example, a person who can successfully lead a small, experienced group of day hikers in the White Mountains of New Hampshire might find it difficult to lead a large group of less experienced day hikers in Harriman State Park in New York or vice versa.

Outdoor leadership skills can be developed and improved over time through a combination of self-study, formal training, and experience. Leadership training workshops are offered frequently by volunteers and staff of the AMC. The trainings range between one day trainings in each chapter to the 5-day Mountain Leadership School held in the White Mountains each summer. Prospective leaders should start by co-leading hikes and backpacking trips with experienced leaders and by volunteering to *sweep*—that is, be the last person at the back of the group—on these activities. (By sweeping, a prospective leader will gain first-hand experience of the problems likely to occur in back of the group.) We also recommend that prospective leaders hike and backpack with a number of different leaders to familiarize themselves with a variety of leadership styles and techniques. Thus, after observing different styles, leaders can choose techniques that work best for them.

This AMC Mountain Leadership School Handbook, has the following goals:

- **To provide information for leaders to assist them in leading safe and enjoyable trips outdoors.**
- **To raise each leader's level of outdoor leadership awareness.**
- **To help leaders become aware of the skills they need to develop.**
- **To build confidence and enthusiasm about leading groups.**
- **To teach leaders how to plan, organize, and lead outdoor trips.**

Leaders and Groups

It's one thing to be proficient at an outdoor activity and quite another to lead a group of people proficiently on an outdoor activity.

Leadership is an elusive concept. What makes people follow a leader? And why do some people follow while others do not? Are people born with the ability to lead or can it be developed? Exactly what is leadership?

The Situation: There must exist a situation where leadership is required. This can be a crisis, a planned event, a group of people learning to interact with each other, or a situation in which something needs to happen. Leadership is a response to a need.

The Followers: The individual members of a group must be willing to be led, and they must agree to follow a course of action to meet the group's goals. Group members must view their acceptance of the leader's guidance as the way to achieve their own goals. Leadership fails when the group does not accept the leader.

The Leader: Simply defined, *leadership* is the association between an individual - the leader - and a group of people sharing a common interest or goal, with the leader directing the group to behave in a certain way. The leader accepts responsibility for the needs of the group and influences its members to work together for the benefit of all.

No single personality type is preferable for leadership. However, a person who is comfortable making decisions and who enjoys responsibility and the dependence of others will find more enjoyment in serving as a leader. Shy, introverted people may not enjoy being in the leadership role, but they can be very effective leaders. Good leadership traits may be found in all personality types.

Some people seem to be *born leaders*. But most become good leaders through hard work and many years of experience. In the outdoors, a leader must be prepared to face physiological, psychological, and environmental challenges. Experience will generally reduce the leader's anxiety about the situations that may confront him or her, and make the leader more confident and skillful than someone who lacks experience. An experienced leader will also have a better idea of how their personality will affect others and will have more skill in selecting appropriate approaches to his or her followers, depending on the situation.

Leadership Styles

The way in which a leader approaches both the group and the situation is called *leadership style*. For example, a leader may decide to be low key instead of highly interactive. The leader's style reflects his or her personality, experience, and the situation at hand. A style type should be selected according to the situation and the followers. A leader may even have to employ a different style for each person in the group because people respond differently to each style.

Choice of style greatly influences the leader's effectiveness. A decision to change styles can be very important either as a long-term adaptation or as a quick adjustment in response to a new situation. When faced with many options, a leader must adopt a style that will safely bring about unity when the followers cannot agree.

It is possible to delineate several styles of leadership. No effective leader can rely on only one. Leadership styles are fluid and most people will find themselves using several or all the styles at one time or another depending upon the situation. The four main styles are (1) **authoritarian**, (2) **selling**, (3) **consulting**, and (4) **engaging**.

1. Authoritarian or Controlling. This leader is in charge. He or she makes the decisions for the group. This leader tells, commands, or orders the followers. This style is task-oriented and geared to deal with the problem at hand. For example, a thunderstorm is approaching. The leader assesses the situation and says, "Everyone turn around now! We're going down." This style is particularly useful with children, or groups in crisis or close to panic. When well done, this style can be very attractive to many followers who do not want to be involved in any of the decision-making.

2. Selling. This leader also knows what he or she wants the group to do. There is little room for the followers not to buy the leader's point of view. The leader sells, persuades, and convinces the followers to do what he or she has decided. Continuing with our bad-weather example (but without a thunderstorm), this leader would say, "Look guys, there are some clouds building up over there. I think it's a bit risky to continue. We're probably going to get caught in a storm. We definitely don't want to get wet, right? Let's go down."

3. Consulting. This leader also makes the decision for the group. The difference is that the followers' opinions are solicited and considered before he or she arrives at a decision. This leader questions, listens, reflects, and often paraphrases what has been said, and then he or she directs the group. The followers have a much greater sense of participation in the decision-making process. In this style there is a focus on the process of decision making rather than just the outcome. This leader would start by saying, "Look at those clouds over there. What do you think about continuing?" He or she would then listen

to everyone's concerns and considerations think about what everyone said, and then *the leader* would make the final decision. "I've thought it over and I've decided that we should go down. I know that not everyone feels the same, but I agree with Bob and Sarah that it's too risky to continue."

4. Engaging. This leader makes decisions only in emergencies, spending time facilitating the followers in making their own decisions. He or she will lead the group in questioning, listening, and reflecting to allow the followers to arrive at a decision about what is to be done. This leader allows the group to take the responsibility to make its own decision.

This leader might be the first to notice and mention the clouds building up, but he or she might also wait until someone in the group mentioned it, and then say, "I noticed them, too. What do you think? Should we continue to the top?" He or she would continue to ask questions and encourage everyone in the group to voice an opinion, occasionally summarizing what he or she is hearing. "So far this is what I hear: John and Sue, you definitely want to go down. Sandy, you seem undecided. What considerations do you have?" The discussion would continue until a solution was found that everyone could accept. "I have a real sense now that we want to go back down to camp." With this style the leader facilitates the decision—but the group makes the decision. Discussions take time, but the end result is greater support for each decision.

Leader and follower participation in the decision-making process varies with each of these styles. Authoritarian or controlling leaders have all of the decision-making responsibility, while engaging leaders give their followers all the responsibility.

There are two other styles that are worth mentioning: (5) **laissez-faire** and (6) **charismatic**. They are not as easy to define as the above four.

5. Laissez-faire. This leader is not concerned with moment-to-moment decision-making. This style is suitable only with groups of competent, friendly, and well-motivated participants. For this style to work, each group member and the group as a whole must make good decisions. With this style it is often difficult to recognize the leader until a situation arises where he or she is needed. Most of the time this leader's role is not different from that of other followers.

6. Charismatic. This is the leader whom others wish to follow because of the attractiveness of his or her personality. This is the leader who inspires us and makes us want to accomplish more. Taken to extremes, this can be a very dangerous style if participants stop using their own judgment and follow blindly. This is often the style we think of when we think of *leadership*, but it is not a style that we attempt to teach or develop. Its role is limited in the outdoor environment, but it does have a place. When followers are tired and hungry, it helps to have the lift that an inspirational leader can provide.

Participant Roles

As we saw in the preceding section, leadership is not isolated in the leader but is very strongly linked to the participants. Just as there are models for leadership styles, there are also models for participant roles. Below is a partial list of negative blocking roles. When a participant assumes one of these roles, it blocks the group from achieving its potential, or worse. Some of these blocking roles appear in the *Peanuts* comic strip.

1. The **AGREER** (Marci) goes along with anything. Marci just "yeses" Charlie Brown to death. This can get the individual in trouble and can prevent the group from reaching the best possible decision.
2. The **OPPOSER/CRITICIZER** (Lucy) tends to criticize, challenge, and either overtly or covertly undermine the leader. This can be very subtle such as someone in the back of the line muttering and complaining under his/her breath or very obvious such as someone who is constantly questioning the leader's decisions in front of the whole group. Some leaders are intimidated, but you need to recognize this as an almost universal occurrence in a group. Study group life cycles to understand when this behavior is most likely to surface.
3. The **SILENT OBSERVER** (Snoopy) has important contributions to make but doesn't make them. A leader needs to solicit and encourage these members to speak out.
4. The **NON-LISTENER** (Schroeder) cannot possibly be helping the group. Members need to be good listeners just as does the leader. At the most basic level, a leader needs to be sure that anything said can be heard by the entire group.
5. The **CLOWN** (Peppermint Patty) in the group must not become a blocker. Humor has its appropriate time and place but should not be allowed to get in the way.
6. The **DOMINATOR** asserts authority or superiority through manipulating the group or certain members. This may take the form of flattery, asserting a superior status or right to attention, or giving directions. The leader may need to recruit their co-leader to assist in mitigating this role.
7. The **INTERRUPTER** may or may not be the dominator. A group needs rules, and all should be allowed to speak without being interrupted.

Participants can also interact with the leader and the group in more positive ways. Below are two roles that will not usually block the group from achieving its potential.

1. The **FOLLOWER** respects authority and is usually very supportive of the leader. This participant may develop a real dependence on the leader or may just have a need to accept someone else's guidance. The leader's reaction to this person is usually one of appreciation. This is the follower who confirms the leader's role.
2. The **BYSTANDER** tends to be somewhat aloof, going along with the program, whatever it may be. If there is a conflict in the group, the bystander will not become involved or take sides. The leader's reaction to this person is bland or neutral as contrasted with the negative reaction to the opposer and the positive reaction to the follower.

Just as with leadership style, participant roles are flexible. A person, who is by nature a follower, may suddenly become an opposer if he or she is put into a position that is threatening or uncomfortable. Conversely, an opposer might decide to be a follower if he or she is impressed with the actions of the group leader and gains sufficient respect for him or her.



Adapting Leadership Styles to Participant Roles

How does the leader's style mesh with the participants' roles and abilities? When do you use what style? What situation calls for what style? These are difficult questions to answer but can be the key to excellent, flexible leadership. We can make a few suggestions based on examples of different situations and different types of groups. You will notice that safety and risk are critical – the greater the risk, the more forceful or decisive your leadership style will most likely need to be. However, because each group is different, any style may work in any situation.

Situation and Followers Styles

Possible Leadership

The objective dangers are high & the participant's skill level is low.

Authoritarian

The objective dangers are low & the participant's skill level is low.

Selling
Consulting

The objective dangers are high & the participant's skill level is high.

Consulting
Selling

The objective dangers are low & the participant's skill level is high.

Engaging
Laissez Faire

There are no rules and regulations governing the choice of leadership style. The leader must approach each situation and each follower as a new and unexplored adventure. A leader's experience in previous situations will help get him or her get started, but flexibility and the ability to recognize the need for flexibility are the keys to success. Leaders need the ability to switch from one style to another as the situation changes and as they get to know their followers.

This is also an important factor to consider when selecting or working with a co-leader. If there is a particular leadership style that is most challenging for you, you may want to seek out co-leaders who are able to take over when that style is needed. For example, when working with a co-leader, you should discuss your strengths and weaknesses in terms of leadership style so that you can give each other support as well as opportunities to practice different roles.

Group Life Cycles

Simply defined, a *group* is an assemblage or collection of people sharing some kind of interrelationship. We can identify many different types of groups, both large and small. Examples of large groups might include a society, a community, a major business enterprise such as a Fortune 500 company, an organization such as the AMC, or a sub-organization such as an AMC chapter. Small groups may be defined as those consisting of no more than twenty to thirty people. Examples of small groups might include a family, a project team in the workplace, a committee, a trail maintenance crew, or a gathering of friends.

Groups engaging in the kinds of outdoor activities addressed by this manual are small groups, ideally consisting of around ten people. In some instances, such as on any backpacking trip or on hikes in environmentally sensitive areas, the group size must be limited to ten or less. In other instances, such as day hikes in a heavily used park close to major metropolitan areas, the group size may consist of more than ten people—but it becomes more difficult to lead a larger group.

We can identify certain characteristics that are inherent to a small group. Its members must:

- Be able to communicate easily with one another.
- Be engaged in an activity in which they share a common fate.
- Be aware of their interdependence and recognize that it is in their interest to cooperate with one another.
- Remain together for a sufficient period of time.

In many respects, a small group of individuals is a complex living entity. If its members remain together long enough, a group can progress through a series of developmental stages or “life cycle,” just like the individual human beings who comprise it. The group’s life cycle consists of at least four distinct stages: (1) **infancy**, (2) **adolescence**, (3) **adulthood**, and (4) **closure**. Leaders and group members who understand this developmental life cycle are better equipped to survive the shaky and sometimes turbulent beginnings of a group and thereby reap the benefits of the group as it matures into a cohesive functional unit in the adulthood stage. Also, the leader plays a key role in the closure or termination of the group. Each stage in the group’s development will be experienced—no matter how unpleasant—as our own unique example in the inevitable cycle of group development.

Stage One: Infancy/Forming

The Group Dynamic: There are countless scenarios that can bring a collection of people together as a group. Although these scenarios are as diverse as the individuals who may constitute the group, there are some behavioral dynamics that are common to all newly formed groups. The dominant behavioral characteristics of individual members in an infant group are politeness and superficiality. Interpersonally the members experience a sense of approach/avoidance anxiety as they carefully position themselves in relation to one another. The main intra-group dynamic is inclusion/exclusion. Each individual questions whether he or she wants to be a member of the group, and the group questions whether it wants him or her as a member.

Leadership: Leader-group behavioral dynamics in an infant group are characterized by the members' dependency on leadership—and at the same time their aloofness toward leadership. Because of the confusion, ambiguity, and anxiety that pervade the newly formed group, it searches desperately for leadership. At this point, any reliable direction, guidance, or information might quickly be embraced by its members. The group is ready to progress beyond infancy when a common level of expectation has been developed.

The leader's focus during the infancy of a group should be on the following:

- Allowing distance.
- Working on involvement at a safe pace.
- Furnishing information or rules on group operation.
- Gently inviting trust.
- Minimizing competitive interaction.
- Fostering a common level of expectation.

Many groups that meet for a day trip proceed no further than the infancy stage. Groups involved in simple activities that can be accomplished by individual members without interaction—such as hiking or biking—may never get past the superficiality of the initial stage. If the completion of a group task is required, such as cooking a meal, then the group may progress beyond infancy.

Stage Two: Adolescence/Storming

The Group Dynamic: This is a crucial stage in the group's life cycle because it deals both with power and with the decision-making processes that are necessary for the group to function later on. Adolescence is the most difficult and stormy stage for the group as a whole and for its individual members. The

identities of individuals clash with the newly forming identity of the group. The dominant individual behavior of group members at this stage is a conflict between autonomy and affiliation. They strive to regain their individuality and state their needs as they affiliate with the group. A full range of emotions is usually applied to this task.

Interpersonally the group members are concerned with control needs such as influence and status. They question whether they are in control and whether there is a sense of direction. They react negatively to leadership in its infancy. The group is ready to progress beyond adolescence only when group members create and agree upon an acceptable order and process for group decision-making. A group that tries to progress beyond this stage without resolving these control issues will only be forced to return to the adolescent stage for a later resolution.

Leadership: The leader's focus during the adolescent stage of a group should be on the following:

- Allowing autonomy.
- Acting non-punitively to affronts on authority.
- Enforcing group rules and policies.
- Clarifying issues.
- Maintaining sufficient authority and control.

A group cooking its first meal together usually exhibits this adolescent stage. Expressions such as “too many cooks spoil the soup” and “if you can’t stand the heat get out of the kitchen” are frequently heard and are expressions of the control issues that dominate this stage. Group members who attempt to lead or cook are frequently greeted with criticism and their efforts undermined until the group reaches an acceptable order and process.

Stage Three: Adulthood/Norming and Performing

The Group Dynamic: In this stage the group begins performing as a group and not merely as a collection of individual group members. Tasks are defined and decisions are made according to the order and processes established in adolescence. An individual group member’s behaviors are dominated by involvement and commitment toward the group and its goals. Interpersonally there is both caring and conflicting interaction between group members. Intra-group behavior is directed toward “norming and performing.” The group members work collaboratively and synergistically toward the group’s goal. Tasks are accomplished by a blend of leading, sanctioning, and following through.

Leadership: As the group functions together, a trust evolves among its members. Leadership behavior should involve clarification and facilitation. Good leadership styles to try at this stage are those involving consensus and shared leadership.

The leader's focus in the adulthood stage of a group should be on the following:

- Listening to group members.
- Supporting the group as a whole.
- Encouraging total participation.
- Encouraging productive conflict.

The sense of accomplishment in finishing a task, reaching a consensus, or solving a problem is a powerful unifying force within the group. A group identity emerges from a feeling of uniqueness with the group fully aware of its strengths and weaknesses.

A group that has successfully established a campsite and prepared its first meal together is a force to be reckoned with. Its members have established an identity that will bond them together to tackle even bigger challenges at later points during the group's existence.

Stage Four: Closure/Adjourning

When the purpose for the group's formation no longer exists, or the goal has been achieved, or the time has expired, the group must have *closure*. After a group successfully completes its full life cycle, there is a natural tendency for its members to attempt to remain together. But, failure to disengage once the cycle has concluded will only lead to a hollow, unfinished feeling in the future.

An individual's behavior at closure may reflect a sense of loss and even a denial of the significance of the group to him or her. Separation conflicts may be eased through a process known as *clustering*, in which the group members position themselves close to one another at the conclusion of the activity. Intra-group behavior might include evaluations of the group or a recapitulation, such as a brief summary or review of its experience. Group leaders should try to facilitate clustering and also any evaluations or recapitulations.

Closure can be achieved by providing a bag of M&Ms when the group returns to the cars, a group photos, or by a group visit to a nearby restaurant after the trip. A leader should plan a closure activity as carefully as he or she picked the route or directed the group. The longer the duration of the group's life cycle, coupled with the level of maturity attained within the group life cycle, the greater the need for closure. In the case of a group of day-hikers who have been together for a very brief period, at the conclusion of the hike, the leader might

simply remain at the trailhead, thank the participants for coming, shake hands, and encourage them to attend other hikes if it seems appropriate.

Many times, successful groups plan reunions. If these reunions do occur, feelings are never the same as before, because the context for each of the members has changed. It is far better to savor the joy of the experience at closure than to try to recreate the experience in the future. Complete the cycle and share the good-byes without sorrow. Learn from your experience and look forward to your next group activity.



Stages of Group Development

	Stage 1	Stage 2	Stage 3	Stage 4
Dimensions	Form/Infancy	Storm/ Adolescence	Norm & Perform	Closure/Adjourning
Group Behavior	Polite Superficial Confused Anxious	Rebellious Recalcitrant Emotional	Cohesive Collaborative Synergistic “Group Identity”	<i>Clustering</i> Fusion
Group Issues & Tasks	Introductions Define Membership Set Goals	Power Struggles Decision Making Process	Functional Productive	Disengagement Recapitulation Evaluation
Interpersonal Attributes	Inclusion Investment	Control Autonomy Affiliation Influence Status	Trust Affection Involvement Commitment	Separation Anxiety Loss & Denial
Leadership Issues & Tasks	Dependent Build Trust Establish Rules Provide Info	Counter- Dependent Enforce & Clarify Allow Reactions Maintain Control	Interdependent Support Encourage	Interdependent Facilitate Closure

Decision Making

Actions have consequences.

In our day-to-day lives, we are constantly making decisions—some of which are insignificant and others that have long-term consequences. When we make our decisions, we often do not pay too much attention to the information or thought processes we utilize. Most of us like to view ourselves as informed, responsible, rational, human beings who exercise good judgment. But in reality, when we make decisions we often rely on information that is faulty, irrelevant, and incomplete. And we allow our decision-making processes to be influenced both by peer pressure and by our own personal desires, prejudices, and deeply ingrained behavior patterns.

Simply defined, *decision-making* is the process of selecting among alternative choices. A basic decision-making model consists of the following steps:

- Identifying and defining the problem.
- Generating solutions.
- Evaluating solutions.
- Selecting a solution and making a choice.
- Implementing the solution.
- Evaluating the outcome.

Some decisions can be made slowly over a long period of time; others must be made in an instant. In some situations there is a vast amount of reliable information, in others there is very little. Sometimes we can make our decisions when we are calm and relaxed, other times we must make them when we are under severe stress. In some situations, there may be an optimal solution—which we can identify if we work at it. But many times there is none—we must make a choice and hope for the best. If we are lucky, when we make a poor choice, we can begin the process again and hope for a better outcome.

Three scenarios follow to illustrate some of the challenges of decision-making. The first is an example of a situation in which there appears to be no optimal solution. In the second, there is an optimal solution that a leader would need knowledge and experience to identify. The third is an example of a situation in which employing a risk/benefit approach is ideal and in which the leader would need to draw upon his or her knowledge of leadership styles and participant roles.

Scenario One: No Clear Solution

You are leading a group of ten people on a day hike in New York's Harriman State Park on a Sunday in early August and the weather is sunny and warm. After lunch, two hikers inform you that instead of continuing with the group,

they would like to leave early. One of them is an experienced hiker in his seventies who has participated on many group hikes in the park; the other is an inexperienced hiker in her late twenties. Despite your efforts to convince the hikers to stay with the group, they insist on splitting. After informing them of the risks associated with their decision, you discuss with them the quickest, easiest way out and provide them with a map on which you have outlined their route. The two of them depart and the rest of the group continues the hike.

When you return to the parking lot at the conclusion of your hike, shortly after 3 p.m., you discover the cars of the two hikers parked in the parking lot with the hikers nowhere in sight. The boyfriend of the missing female hiker had remained with the group, and he informs you that his girlfriend had planned to wait in the car until he returned. You learn that one of her reasons for leaving early was so that the older hiker would not have to walk back alone. You wait another fifteen minutes, but still the hikers have not appeared. As a leader what should you do?

The problem is that two hikers have failed to return to the meeting location at the expected time. Neither you nor anyone at the scene knows what became of them. They may be lost; one of them may be hurt or ill, or they may simply be slow in walking back. Alternative approaches to addressing this problem might include the following:

(1) *Assume that the two missing hikers are seriously lost or that one of them is hurt or ill, and immediately call the park rangers for help.* This would be the safest choice—but not necessarily the most sensible. Just because the experienced hiker has participated on many group hikes in the park does not mean that he knows how to navigate on his own. If either of the two were hurt or ill, the victim might require medical attention as soon as possible. But, calling the rangers immediately might be over-reacting. The two missing hikers are not unreasonably late. The weather is warm and dry, and about four more hours of daylight remain.

(2) *Assume the missing hikers are either walking very slowly or became temporarily lost, and that they will appear soon. Plan to remain in the parking lot and wait at least an hour before doing anything else.* This might be a sensible approach. After lunch, your group proceeded at a relatively fast pace with only brief stops for water. Maybe the two who left early decided to walk slowly and make frequent rest stops. Even if the hikers did get lost, if they studied the map, they might be able to find their way, and they also might encounter other hikers who could give them directions.

(3) *Start looking for the missing hikers yourself accompanied by any volunteers.* This might also be a sensible approach. As long as you are careful about hiking out only a set distance or amount of time and there is someone to remain behind in the parking lot, this approach might help you solve your problem more

quickly than other alternatives. However, if the missing hikers were on an alternate trail or if the search was too lengthy, this process might create additional problems.

(4) *Take the attitude that since these two individuals chose to leave the hike, you are not responsible for them.* This approach would be careless and irresponsible, since the two hikers are obviously missing. One of them is over seventy years old and the other is a very inexperienced hiker. If the situation had involved hikers who had chosen to leave your hike to go off on their own, and you were unaware of where they went or when they planned to return, then this would be a more reasonable approach.

Scenario Two: A Clear Solution

You are leading a group of eight backpackers on a three-day trip in early September. Several hours after you depart from the trailhead, your sweep informs you that one person in the group is having difficulty keeping up. You approach this person and she complains that she is experiencing severe leg cramps and that she feels weak and a little dizzy and nauseous. Her skin is cool and clammy. She does not know why she feels ill. As a leader, what should you do?

The problem is that one of the members of your group is unable to keep up because she is suffering from leg cramps and she feels weak and ill. Alternative approaches to addressing this problem might include the following: (1) assume that the victim is too ill to continue, abort the trip, and begin planning for her evacuation; (2) assume that nothing is seriously wrong, allow her to rest awhile, and then urge her to continue; (3) assume that she is suffering from heat exhaustion, administer the appropriate first aid, and then reassess her condition. In this situation, the third alternative is the best solution. It deals first with the immediate problem of the condition of the victim and leaves some flexibility as to the next step for the trip overall.

In a scenario such as this, knowledge of wilderness first aid is critical in making the best decision. If the leader lacked such knowledge, he or she could consult other members of the group to determine if someone else might be able to help. The leader should not necessarily be the one who administers first aid—especially if others in the group are more qualified. In the absence of anyone with appropriate training, the leader would have had to make a conservative decision and end the trip.

Scenario Three: A Risk/Benefit Approach

You are leading a group of ten hikers in a remote wilderness area that is unfamiliar to everyone in the group. The group is on a marked trail when one hiker notices a nearby hill and suggests that it would be fun to *bushwhack* to the top. Four other members of the group think this is a great idea. The hill is well below tree line, and off-trail hiking is permitted in the area. As you survey the steep slope leading to the summit, you notice many rocks and boulders. From the way they are perched, you become concerned that the rocks and boulders might be unstable. The five hikers are eager to get started and they are trying to sell you and the others on their plan. As a leader what should you do?

The problem is that members of your group are proposing a route that you believe might be hazardous. In a situation such as this, evaluating risks and benefits can greatly simplify the decision-making process. Approaches to addressing this problem might include:

(1) *Solicit everyone's opinion and if the group is in favor of the excursion, agree to proceed with the assumption that if all are careful, the group can avoid any hazards posed by unstable rocks and boulders.* If you had reason to believe the rocks and boulders on the steep slope were unstable, then this approach would be reckless and irresponsible. There would be little or no time for people to get out of the way of falling rocks or boulders, which would be likely to kill or seriously injure anybody in their path.

(2) *Mention your concerns to the group and agree to proceed to the foot of the hill where you will then reassess the hazards.* This approach might not be viable because even at the foot of the hill, it would probably be difficult for you to determine the stability of the rocks and boulders. Also, once the group began the excursion, people might be reluctant to turn back.

(3) *Carefully explain your concerns to the group, stressing that if any rocks or boulders became dislodged, they could easily kill or seriously injure anyone in their path. Emphasize the challenges and benefits of your intended route.* In this situation, the third alternative would offer the best solution. The risk of death or serious injury resulting from someone being hit by a falling rock or boulder would outweigh the satisfaction that the hikers might derive by scrambling up an interesting but untested slope. Hopefully during its "adolescence" phase, the group adopted a workable decision-making process, and those who originally favored the excursion will accept this as a sensible decision. If not, the leader might need to employ an authoritarian style.

In the context of outdoor leadership, it is important to note that there is a physical side of decision-making. Our brain's ability to function can be affected by conditions such as dehydration, body temperature, fatigue, and our emotional state -panic, for example. Perhaps the most striking illustration of the effects that brain chemistry can have on one's ability to think rationally can be seen in hypothermic individuals. This condition occurs when a person becomes too cold and his or her body temperature drops below a certain point. The behavior of an individual suffering from hypothermia becomes confused, erratic, and apathetic. Judgment is so severely impaired that the victim will fail to put on warm clothing, cast aside essential equipment, and disregard his or her direction of travel.

As outdoor leaders, our ultimate goal is to provide a group of individuals with a safe and enjoyable outing. There will always be known and unknown risks associated with the activities that we have chosen to lead. And there will always be disagreement among a group's members. Utilizing our own personal knowledge and experience, combined with that of those who accompany us, we follow a basic model and do our best to make prudent decisions. We take sufficient time to gather and evaluate information, we consider the needs and desires of those in our group, we give some thought to the consequences of our actions, and we take precautions to avoid conditions such as hypothermia that will result in the impairment of our brain's ability to function. We also recognize that in the real world, luck sometimes plays a major role in determining the outcome of our choices.

Role Plays and Playing A Role (MLS Specific)

Role-plays are frequently used training tools in leadership development programs and are an intrinsic part of MLS. A role-play is a deliberately created situation in which two or more people are assigned specific roles to play with each other in a controlled setting that has a learning objective.

The use of role-plays is based on the Experiential Education Model of “learning by doing.”

Learner	is placed in a	Demanding Situation	which requires	Judgement Skills	followed by a	Debriefing
----------------	----------------	----------------------------	----------------	-------------------------	---------------	-------------------

Role-plays provide the opportunity for participants to experience a wide range of typical problems found in the outdoors in a short period of time. At MLS each participant leads and co-leads their group at some point during the four-day outing. As leader s/he must deal with typical individual or group problems in which s/he is forced to use leadership styles and put to use *soft* or *hard* skills. Soft skills are used to deal with interpersonal problems. For example:

Mr. A. You came on this trip because you were told it was an easy hike. Now you find that the going is very rough. You feel embarrassed about slowing down the group but are reluctant to speak up. You are also beginning to feel angry about the group's lack of attention to your needs.

Ms. B. You are an experienced hiker on this day trip. The pace is horribly slow and you're worried that the group will never reach the peak. The problem is one slow hiker. You decide to complain to the leader about him.

In this situation the leader will have to use the *soft skills* of conflict management and effective communication.

Hard skills are used for the more practical problems that arise around First Aid, equipment failures, weather, etc. For example:

Ms. G. You fall and "sprain your ankle".

The leader must use effective First Aid in this case.

Many of the role-plays used at MLS are prepared ahead of time and written up. Sometimes, however, role-play situations are developed along the trail that relate more specifically to the group experience. The expectation is to give each

leader at least one soft skill and one hard skill situation to deal with; however, critical weather conditions or other crisis situations may preempt any role-play situations and possibly provide for a greater learning experience.

People are often surprised at how caught up in their roles they become. They find themselves feeling angry, hurt, challenged, or left out as the play proceeds and find that these feelings are very real. There is not much difference between somebody ignoring the wishes of Joe and somebody else ignoring the wishes of Joe playing a role. The distinction between *I want it* and *the character I'm playing wants it* disappears quickly. This has to do with people's ability to identify with others. We quickly identify with the role assigned and begin to act as if we really felt that way. In acting *as if*, we begin to feel the real feeling that we would feel if the behavior were ours and not that of our assigned character. This identification with the role is what makes role play such a powerful learning tool. Some people who have experienced well-done role-plays say, "There is no such thing as a role play." They mean that they weren't just pretending to feel something; the situation felt real and they reacted with real emotion. However, people who do find it difficult to get into a role should try as best they can in order to benefit from this learning opportunity.

As real as role-plays can feel, they are still only acting. If a real situation arises, groups need to have a pre-arranged signal to identify the situation as such. Usually, "this is real," or "this is not a role play" are used in real-life situations. MLS instructors do not, as a rule, participate directly in role-plays.

In order to insure that the desired learning from each role play occurs, there needs to be a time of critical analysis or debriefing following the situation. At this time the MLS instructors will facilitate a discussion designed to help the leader and the group members learn as much as possible from the simulated problem.

At this point it is important to emphasize that mistakes are expected and accepted. Mistakes need to be seen as learning opportunities; the goal of MLS is to provide many learning opportunities. In the words of Mark Twain: "We should be careful to get out of an experience only the wisdom that is in it and stop there, lest we be like the cat that sits down on a hot stove -- she will never sit on a hot stove again, but she will never sit on a cold one either!"

Icebreakers and Closing Exercises

The following list contains nine different Icebreakers/Get-to-know-you exercises and nine different Closing exercises. Have Fun!

ICEBREAKERS:

1. Pint of Blood Exercise:

The whole group needs to get themselves and a pint of blood across an imaginary river. Get a large cup filled with water. Create an imaginary river 25-30 feet (that's 25-30 size-11 boot steps) wide. The group gets to place their feet on five imaginary rocks in the river twice the size of a human foot, and once a foot is placed on the spot it cannot be moved. When a foot is pulled away, the rock disappears and is lost. People may not take off a boot and place it as a rock. If anyone touches or falls into the river, all group members must return to shore.

CAUTION! People have hurt themselves by having the top of their feet crushed. Use EXTREME CAUTION when stepping on toes, literally.

2. Introductions: State your name and...

A. Tell us a little about yourself so that we can get to know you better.

B. Respond to some of the following questions:

1. What one thing do you **fear** most about the upcoming week?
2. What is the **best** and **worst** thing that could happen to you during MLS?
3. Tell us one thing that you **are**, one thing that you **do**, and one thing that you **appreciate** about yourself.
4. Tell us about your **best** or **worst** hiking/outdoor experience.
5. First Aid Training? Leadership experiences? Concerns?
6. Goal Setting: What did you come to MLS? What do you want to accomplish/learn?

3. Paired Introductions:

Choose a partner, interview them, and introduce your partner to the group.

4. Unique/Common:

Break into groups of four. Draw one box in the center and four smaller boxes surrounding the center box. In each of the side boxes, write the individual's name and something that is **unique** about them and distinguishes them from the rest of the group. In the center box, write down the things that the whole group has in **common**. Share this with the other groups.

5. Name Game:

Say your name with some fictitious profession (e.g. Katie the sheep herder or Katie the glass blower). The next person must repeat your name and profession and add theirs. The third person repeats both names/professions along with his/hers and so on.

6. “Ta-Da”:

Say your name and something you’ve done lately that you are proud of. For example, “I’m Katie and I just graduated from college”. Then say “Ta-Da” while holding open your hands while everyone gives you a round of applause. You could also combine this with the Name Game—and this exercise can also be great for closing or at the end of the day.

7. Objects from Nature:

Have objects from nature (or whatever) spread out on a table (e.g. rocks, wood, feather, plants, etc.). People are directed to choose an object that relates to them in some way. Participants then introduce themselves explaining why they chose their object and what it tells about them.

8. Three Truths and a Lie:

Tell the group four facts about yourself; one fact will be false. Each group member guesses which fact is untrue and why.

9. The Human Knot:

Group stands in a circle. Grab and hold hands with two different people across from you **NOT** next to you. Group tries to untangle human knot without releasing hands.

CLOSING EXERCISES:

1. Wishes and Plusses:

Each person states one **wish** from their MLS experience as well as one **plus**.

2. Remember Today:

Shut eyes while facilitator leads a “guided visualization” of our MLS experience. (e.g. “Reflect on your MLS experience—remember your first day: what you were feeling, etc.” –Walk them through each day touching upon the highlights of your experiences together. Have them think about what they have learned and what goals they accomplished. Bring them up to the present moment. Ask, “What do you need to do now in order to feel ‘finished’ with your MLS experience?” (i.e. Do you want to say something to the group? To an individual? “Be sure to do whatever you need to do for closure” or “We have all shared a

special experience together that will not be repeated again. Hold onto that memory.”

3. Unfinished Sentences:

Complete the Following Sentences:

One thing I learned about leadership is...

One thing I learned about myself is...

If there was one thing I could do over...

Right now I am feeling...

I was worried when...

I was proud when...

When I think about leaving I...

One of my biggest frustrations was...

4. Strength Bombardment:

One person is *it* at a time. Each person tells *it* one thing they like about them (it must be different from what others have said).

5. “Ta Da”: See Icebreakers

8. Awards:

The facilitators award each person with some object (picked up along the trail) that acknowledges something special/deserving of praise. Or, pair off, and then partners give each other an award culled from the landscape.

9. Letters Home:

Have participants write letters to themselves, seal them in envelopes, and then collect them. Mail them back to participants in one year.

Trip Planning and Management

Because AMC members enjoy such a broad range of recreational activities, trip planning and management varies greatly throughout the club—everything from urban walks or short walks in local parks to technical whitewater kayaking. Not all of the information in the following section will apply to all activity leaders – leaders must tailor the elements of trip planning to fit their activity. If in doubt, err on the side of safety and on the side of greater planning and detail.

At first, the process of trip planning and management may seem daunting. Try to keep a few things in mind:

- Even if you are an inexperienced in group planning, you most likely have experience planning a family vacation, personal trip, etc. that will help you along the way.
- Checklists are good aids in successful trip planning. This section will provide you with several checklists to help you get started.
- A good trip plan is detailed. While the amount of detail should be dictated by the complexity and risk of the trip, in general, the more detail the better.
- A good trip plan has a substantial margin of safety. Be prepared to be flexible – build alternatives into your trip so you can deal easily with complications that may arise.



Routes and Trip Plans

Once you have defined what type of trip you are going to lead and the general area to lead it in, you need to develop a trip plan or itinerary. The route is going to be the main part of that trip plan for most trips. Below are some factors you need to consider in developing your route. You do not need to approach these factors in this order – depending on your interests and the nature of your trip, certain elements of the route planning process might be more important than others.

- **Distance** – how far will you travel? This will have a significant impact on the difficulty level of your trip. Keep in mind how many hours of daylight you will have, when you will be getting started, etc.
- **Water** – is it available? On a day hike, you will most likely be able to carry all the water you need, but it is still a good idea to bring a purification system (like iodine or a filter) and know where you will come across water. On a longer trip, this is an extremely important factor. Be especially wary of long stretches above tree line.
- **Terrain** – what are the trail conditions like? There are many things to consider here. Will the trail be relatively flat, steep, rough, exposed, and potentially slippery? Will it require scrambling? Keep in mind the season and recent weather, and you should check with a local ranger's office or other local services to get a report on trail conditions or possible closures.
- **Potential Hazards** – where are the points on your route where you are most likely to run into trouble? If you will be spending time above treeline, consider danger from lightning storms. Stream or river crossings and road crossings are also potential hazard points. Even particularly steep or rocky sections of trail are places you will want to pay attention to in your planning.
- **Alternate or Bail Out Routes** – what are the potential ways you could alter your route if you run into problems? As was mentioned in the beginning of this section, having a substantial margin of safety and the ability to be flexible are critical in route planning. If someone were to be injured, you were to run into a lightning storm, or you simply found that your group was considerably slower than expected, how would you change your route accordingly? It is also nice to plan *extras* – a spectacular lunch spot or to a peak that you do not advertise or count on being able to do, but that you can take on with a strong group.

Once you have your route planned, you will need to consider additional factors to make your trip plan complete. As with the elements of the route, elements of the trip plan may be more or less important depending on the activity.

- **Time Management** – this includes all the time related factors on your trip. When will you tell people to meet? When do you hope to leave the trailhead? What is your turnaround time? How many hours a day will you hike (or bike, paddle, ski, etc.)? You can use a general formula to try and get a sense of where your group should be throughout the course of the day – start with a basic pace of 2 miles/hour and add 1 hour for every 1000 feet of elevation gained and ½ hour for every 1000 feet of elevation lost. While you should have some idea of when you plan to finish your trip, make sure participants realize that the finish time is a goal, not a guarantee.
- **Emergency Action Plan** – These are all the things you need to consider in case an emergency should occur on your activity. If you are on the side of a road and need help, you will most likely call 911. However, you should also know where the nearest hospitals are in case you have an injury. If you are traveling in the backcountry, you should be aware of whatever search and rescue resources are available and how to contact them.
- **Regulations, Permits and Reservations** – You must always be aware of the regulations for the area in which you are operating your activity. If you are camping, you may need a permit – be sure to investigate as early as possible so that you can reserve space if you need it. If you are running a trip in the White Mountain National Forest, you'll need an Outfitter Guide Card, which you can acquire through your AMC chapter or through the WMNF.
- **Food and Equipment** – Your needs will vary greatly depending on the trip. Make sure that you plan well and provide for a margin of safety – emergency food that is easy to prepare, spare parts and/or repair kits for critical equipment, duct tape, extra fuel if you are using stoves, etc. In addition, make sure that you plan for group needs as well as individual needs and are clear in communicating to participants what they are expected to bring and NOT to bring.
- **Cancellation** – if there is a possibility your trip may cancel; make sure you plan for this eventuality. Have a contact list so you can get in touch with everyone. If there is any money involved, decide how and when you will refund it.

Screening Participants

An essential part of trip planning as well as risk management is determining who is qualified to participate in your trip. As mentioned before, the broad range of trips one might consider has a direct effect on the level and depth of screening – from no screening (show and go) to extensive questioning of participants and possible reference checking. The goals, location, and time of year of the trip also affect the requirements of the trip and consequently the screening. Likewise, screening will vary depending on whether the trip is intended for children, adults, or both.

Although good screening will not eliminate all problems that might occur during the trip, it can go a long way to limiting risk proactively before a trip. The main goal of screening is to match a participant with the physical and equipment requirements of the trip. You want the trip to be enjoyable for all (remember that the goals of all trips are: safety, fun, and reaching the final planned destination.) During the initial contact with a prospective participant, you have the opportunity to explain the trip's expectations and requirements (equipment, clothing, cost, goals). Sometimes people will screen themselves from a trip after they hear additional details and requirements. This is certainly preferred over your having to screen them off the trip by indicating that it is too difficult. In that case, we strongly encourage leaders to suggest a more suitable trip for the participant. This is especially important for the inexperienced person who might feel they are being "blown off." Another approach with an inexperienced person is to not accept or deny them when they first call but determine if they are willing to be on a waiting list. Call a leader leading an easier trip to verify space and then call back the person to indicate that the other leader has room on their trip. Alternatively, you can list or point them to easier trips.

Another purpose in screening is to limit group size. Certain locations have regulations on the maximum number of people traveling and/or camping together. Note that if neither you nor your co-leader has done the trip before it will be more difficult to screen since the physical requirements will be less clear. If this case you may need to set a higher experience level and requirements.

If your trip is advertised in publications or a newsletter here are some important points to keep in mind:

- Be prepared for a phone call anytime – did you state when to call? Avoid screening via email unless you know the person and their abilities. A direct conversation is preferred since it is more interactive and allows you to get a better sense of a person's true abilities and experience.
- Have a list handy of questions to ask (see below). The conversation should not be an exercise in wearing each other out. You may need to explain why you are asking these questions (as the leader you are responsible for the

group and want everyone to have a good time). Develop your own style. A relaxed conversation that encourages the potential participant to volunteer information about themselves is better than just hitting them with a battery of questions.

- If they qualify for the trip, provide initial information (follow-up later with email or printed information sheet).
- Remember that screening does not end until the trip actually begins – be sure to check equipment/clothing at the trailhead or starting location.

The following questions can be used to screen participants for outdoor trips. The difficulty level of the trip will determine which questions to ask.

QUESTIONS:

1. What is your name? (spell if necessary)
2. What is your address?
3. What is your telephone number?
4. Is anyone coming with you? Do not allow the caller to “register” another person unless you already know that person and their experience level—as the other person to call you as well.
5. What is your experience level? Explain the trip rating system if necessary and one exists.
6. What is the longest trip you have been on?
7. Have you gone with a group before?
8. What other trips have you been on and who led them? What trips have you done in the past 6 months? What kind of exercise do you do regularly? How often?
9. What kind of equipment do you have?
10. What is the worst problem you have ever had on a trip?
11. Do you have any medical problems or are you taking any medications that could be pertinent to the trip? Allergies? Asthma?
12. Do you have any medical training that you wish to share with me or the group?
13. Do you have any questions?

YOUR RESPONSES:

After obtaining answers, you may then decide whether the trip will be beyond their level of skill, within it, or too elementary. If they wish to participate in too-easy a trip, that is their decision but if they wish to go on a trip that is beyond their ability, that is your decision. For an advanced trip it is best not to accept someone that you do not know until you have a chance to check their references – others they have gone with and leaders. As a leader it will be your responsibility to recommend that they do not participate. If they persist, you may have to refuse to take them. Explain that the trip includes certain risks (mention them) and that an inexperienced participant could create a possible burden on

the leader and other participants. Encourage them to try another easier trip so they can build up their skills. If their equipment is incomplete or inadequate, you may require them to obtain the proper gear, for their own comfort and safety and that of the group.

If they qualify for the trip, mention the requirements, such as deadline for deposit, cancellation policy, length of trip, where and when to meet and what type of snack or food to bring. Explain how long after the set meeting time you will wait for all to appear. Say that you will start the trip promptly.

Note for AMC trips: A goal of AMC trips is to make them comfortable, inviting and accessible for people of any age, gender, race, religion, ethnicity, ability, sexual orientation, or socioeconomic status. Some AMC programs are designed for a certain age range of members or for a special activity or topic. However, any person who meets the minimum qualifications (skills, experience, fitness) established by the trip leader(s) for an activity is eligible to attend, if space is available.

Remember that a well-planned trip and well-prepared participants make for an enjoyable and safe experience for all. Good screening can do much to ensure that this will happen.



Pre-Trip Planning Checklist

- Consider and know your own capabilities.
- Plan a rough idea – date, destination, and difficulty.
- Select a competent and appropriate co-leader – you can't do it all yourself. Leadership includes cooperation and delegation. Spending the necessary time planning with your co-leader before the trip starts will help you to think and act in a cooperative fashion that will enable the trip to move smoothly. Additionally, make sure that you and your co-leader have the appropriate (and current) Wilderness First Aid/CPR certifications.
- Plan the route.
- Plan alternate options for the route.
- Create a time management plan including date, meeting time, turn-around time, and finishing time.
- Research emergency services.
- Research park fees, permits, tolls, parking availability, and any restrictions or regulations such as fires, camping, and group size limits.
- Decide on a safe party size and minimum and maximum group size (10 is the maximum recommended). Consider environmental impact, group dynamics, and group control. A good rule of thumb is a minimum group size of four – in case of an accident, one person can stay with a patient and two can go for help.
- Decide if your trip will be *show and go* or if you will screen participants.
- Establish equipment requirements including food and water (check working condition of all gear). Don't forget group equipment needs such as a first aid kit, extra food and water, etc.
- Determine what to do if trip is canceled (time of decision, contacting participants).
- Prepare and publish a trip notice including the following information:
 - trip date
 - destination
 - distance
 - difficulty
 - equipment and clothing required
 - food and water needed
 - leader and/or co-leader's name and contact information
 - prerequisite skills or experience
 - special activities or points of interest.

- If you will register or screen participants, make a list of the things you need to tell each participant (what to bring, meeting information, trip details, etc.) and what you need to know about each participant (contact information, related experience, physical condition, equipment, etc.)
- Take care of yourself – eat balanced meals and snacks, drink plenty of liquids, and trip to get a good night’s sleep the night before your outing (and during it, if it is a multi-day activity).
- Leave a detailed itinerary with someone at home in case of an emergency.

Trip Management

Getting to the Meeting Place

1. Determine the weather early enough to cancel, if necessary.
2. Have list of participants meeting at designated meeting spot.
3. (optional) Bring extra gear in case people forgot things.

At the Trip Meeting Place

1. If leading an AMC trip, discuss the pertinent risks of the day, and have your participants sign in and/or sign the AMC Volunteer Release Agreement (discussed in *AMC Policy and Forms* section). Know who has vehicle keys; gas in vehicle; snow shovel, etc.
2. Review equipment, especially critical items, including food and water. If you will be backpacking, this is especially important – make sure the stoves work, the tents all have poles and flies, etc. If someone in your group is unprepared and has inadequate equipment, you will need to either provide them with adequate gear, or ask them not to participate.
3. Set a positive tone for the group. Encourage everyone to make introductions. On the trail or on the river, everyone will need to watch out for each other. One's individual welfare is inseparable from that of the group.
4. Outline the trip plan – make sure everyone is familiar with the pace, destination, timetable, etc. Tell people what's going on!
5. Review the goals and expectations of your activity, making sure that everyone understands that it is always a higher priority to maintain the safety of the group and to have a good time than to reach the summit or run the rapid.
6. Review any rules that might apply to your activity. On a hiking trip, this may mean staying together and stopping at trail junctions or other potentially confusing points; on a biking trip, this may mean wearing a helmet and obeying traffic laws.
7. Check and review the weather forecast and potential implications (not traveling above treeline in a lightening storm, etc.).
8. Assign lead and sweep responsibilities if appropriate.
9. Ask about participant medical training and medical conditions.

On the Trip

1. Set a reasonable pace – a group moves efficiently at a pace that allows everyone to keep up and minimizes long stops and fast starts. Let the pace flow smoothly with the terrain and conditions at a speed that can be maintained. Think tortoise, not hare.
2. Stay together. The group has more strength in equipment and knowledge than an individual. Keep the group together by:
 - Maintaining visual contact with the person in front of and behind you.
 - Assembling at junctions or other potentially confusing points
 - Assigning the slowest member to lead position, if pace is a problem.
3. Watch the weather.
4. Watch the actions of the group for problems – if someone is having difficulty, alleviate the trouble early and encourage everyone in the group to do the same. If someone is getting *hot spots*, stop immediately for blister prevention; if someone cannot keep up, try lightening their load or asking them to hike near the front of the group, etc.
5. Take decisive action in an emergency. Make sure to follow up with an accident report. Accident reports and SOAP notes are vital pieces of information as they accurately report how the accident occurred, and they communicate information to future groups about potential hazards.
6. Maintain communication, discuss potential changes of plan, let everyone know about any changes, turn-around time, etc.
7. Be willing to turn the group around. Start by having a turn-around time based on the amount of daylight, the weather conditions, your group's actual abilities on this trip, and anything else you know about the route you will be taking. When these factors change, you must change also. The desire of the group to reach an objective often does not accurately reflect your priorities. Pay attention to facts rather than emotions and have plan B always in mind.
8. Be aware of your surroundings, escape routes, and alternatives.
9. Take decisive action in emergencies.
10. Have an identifiable group first aid kit.
11. Talk about environmental sensitivity and the Leave No Trace principles.

At the Campsite

1. Locate a suitable site (below treeline) that is 200 feet from the trail and water sources, and a minimum of .25 miles away from established campsites, huts, and most roads and rivers.
2. Establish “rooms” or zones in your campsite area: separate zones for the kitchen, the tents, and the group gathering area.
3. Assign tasks such as water gathering and re-stocking, tent set-up, hanging the tarp or clothesline, preparing dinner, and finding a good bear bag site and preparing the rope.
4. Before and during mealtime, promote stove safety by isolating the stove and cook area.
5. Be sure to follow the Leave No Trace standards for maintaining sanitation and packing out all food waste.

At the End of the Trip

1. Account for all members of the group.
2. Make sure everyone has transportation.
3. Sign out at point of registration (if possible).
4. Return, sort or collect equipment.
5. Trip closure, brief good-bye, and congratulations to everyone.
6. Determine if group is meeting down the road for a post trip gathering.
7. Review trip with the co-leader and trip members (if you choose).
8. Make trip report if required.

Time Management

In order for a trip to be successful, as well as enjoyable, we must use time wisely. To help you remember the essentials, our model is as simple as “ABCDEFGF.”

AWARENESS:

Be aware of your own abilities, ambitions, and agendas. Be aware of the needs and abilities of the group. Be aware of constantly changing conditions, such as weather, rate of progress, distances, group conditions, energy, temperament, remaining daylight, etc. Be aware of the trail names and camping areas you will be utilizing.

BREAKS:

Effective management of breaks is the hallmark of an effective leader. It's not how fast you hike that determines your arrival time so much as how much of your time is spent moving. An effective leader plans and controls breaks to give the group time to accommodate personal and social needs, and enjoy the adventure. An effective leader manages all of this but at the same time prevents wasting precious time, unnecessary cooling off, and loss of control of the group.

COMMUNICATION:

Communicating expectations and giving feedback to the group is essential to time management. Announce and describe the breaks in advance (e.g. “We’ll reach a junction soon. We’ll take a five-minute, packs-off break. Grab a snack, a drink, and...”)

DIFFICULTY:

By reading the “White Mountain Guide” description of the trails you will be travelling, we should be able to estimate the degree of difficulty of the route to effectively plan the appropriate time needed. In addition, it is very important to have an alternate plan in case of injuries, bad weather, or other emergencies.

EARLY START:

There is simply no adequate substitute for an early start. Most accidents occur late in the day, when energy levels are low and groups are rushing to make up for lost time. Calculate a safe start time taking into account your deadlines and destinations.

FEEDBACK:

Keep track of how long it takes to cover each segment of your route. Compare your actual time to your planned time. The last mile of the day is likely to take longer than the first. Make good notes of all activities, situations, times, distances, problems, etc. for the feedback session at the end of the day. Plans may have to be changed.

GOALS:

What are our group goals? Write these down before leaving on the trip. During the feedback sessions each evening, discuss, evaluate, and make any necessary changes to these Goals.

Equipment for Mountain Leadership School

Weather in the White Mountains is unpredictable and can change very rapidly. Conditions can be cold, wet and windy. Snow, gale force winds and sub-freezing temperatures can occur every month of the year. Being properly equipped for a wide range of weather conditions is essential for your and your group's safety and enjoyment.

Waterproof and windproof outer jackets and pants are essential. Because cotton absorbs water and loses its insulating value when wet, it is **extremely important that your clothing is NOT cotton. Clothing must synthetic, wool, or a blend of both.** Also, remember that when traveling with a group, you may move slower than you typically do on personal trips. Be prepared to stay warm during sedentary time on trail and in camp.

You must bring all required items on this list. Bring only those optional items you think you will need. Keep in mind that you will be carrying your own gear as well as a portion of your group's gear. If you have any doubts about an item, bring it along and check with your instructor on Wednesday prior to heading into the field. Be prepared to leave optional items behind.

It is important to keep your clothing and gear dry for warmth, comfort and safety. Pack your clothing and gear in plastic trash bags and/or sealable storage bags.

*The * indicates items that are available at the Highland Center for your use during the program. Please contact us in advance to reserve these items if necessary.*

Equipment	Quantity	Comments	√
FEET			
Hiking boots*	Required	1	Medium to heavy-duty boots made for backpacking; ankle height, lugged soles, properly fitted, waterproof, and broken in. No trail shoes or sneakers!
Hiking socks	Required	2-3 pairs	Wool or synthetic, (or a blend of both) medium cushioned crew socks. No cotton socks!
Camp shoes	Required	1	Light sneakers or other closed toed shoes to wear around camp at the end of the day.
Sock liners	Optional	1-2 pairs	Synthetic sock liners for under your hiking socks.
Gaiters*	Optional	1	Ideal for keeping mud, dirt and rocks out of your hiking boots and assisting in blister prevention.
LOWER BODY			
Hiking shorts	Required	1	Quick drying nylon or other synthetic blend.
Base layer*	Required	1	Synthetic or wool long underwear bottom. No cotton!
Insulating layer*	Required	1	Insulating layer for your legs, such as, wool or fleece.
Waterproof pants*	Required	1	Waterproof and windproof outer shell pants. See comments under Waterproof Jacket.
UPPER BODY			
Base layer*	Required	1	Synthetic or wool long underwear top. Long sleeved Zip-T is most adaptable. Again, no cotton!
T-shirts	Required	1-2	Quick-drying synthetic shirt to wear while hiking. Short or long sleeve.

Equipment		Quantity	Comments	√
Insulating layer*	Required	2	Wool, fleece, or similar synthetic insulating layer for your torso, such as, pullover, jacket or vest.	
Waterproof jacket with hood*	Required	1	Waterproof and windproof outer shell jacket. A garment made of breathable fabric, such Gore-Tex or equivalent, will protect you from rain and wind while allowing perspiration to evaporate. No Ponchos!	
HEAD AND HANDS				
Warm hat*	Required	1	Wool or fleece hat, beanie, or balaclava. Should provide protection for the ears, as well.	
Sun hat	Required	1	Quick drying brimmed hat or baseball cap.	
Glove/mittens*	Required	2 pairs	Glove/mitten system to include any two of the following: Windproof mitten shells (are recommended), wool or synthetic mittens, gloves or glove liners. No cotton!	
Sunglasses	Required	1		
BACKPACKING EQUIPMENT				
Backpack*	Required	1	With a 4000–5000 cubic inch (65-80 liter) capacity. <u>Your pack must be large enough for all of your gear with extra room for group food and gear!</u> If using an external frame pack, 4000 cubic inches (65 liters) may be sufficient. If you are using an internal frame pack, aim for 5000 cubic inches (80 liters).	
Pack cover or liner	Required	Cover: 1 Bags: 2-3	Waterproof pack cover and/or inside waterproof liner. Large sized trash bags are good inner liners.	
Sleep bag with stuff sack*	Required	1	3-season (rated to 35 degrees or lower) sleeping bag, preferably with synthetic fill. Stuff sack for your sleeping bag should be waterproof or lined with a sturdy plastic trash bag.	
Sleeping pad*	Required	1	Closed cell foam or self-inflating air mattresses. A closed cell ¾ length foam pad is lighter and will not leak. Bring repair kit for self-inflating air mattresses.	
FOOD/HYDRATION				
Hydration system	Required	3 liters	Bottles, hydration bladder, or a combination of both with the capacity to carry 3 liters of water while hiking.	
Pocket knife	Required	1	Small pocketknife or multi-tool.	
Eating system	Required	1 set	Cup, bowl and utensils for eating meals. “Sporks” are a combination spoon and fork. Bowls with lids are good for storing leftovers. Many MLS instructors use only a spoon and plastic insulated mug.	

Equipment		Quantity	Comments	√
Lunch and trail food	Required	4 days	You are required to bring your own lunch and trail snacks for 4 days on the trail (see recommendations below). MLS supplies group food for breakfast and dinner only.	
Water filter	Optional	1	MLS provides iodine water treatment as group gear. Personal usage water filters are possible, depending on space and weight limitations after dividing group gear.	
NAVIGATION				
Compass	Required	1	A compass with a plastic rectangular base plate is required. In addition to the plastic rectangular base plate, a compass with an adjustable declination scale controlled by a screw on the compass housing is recommended.	
AMC White Mountain maps	Optional	1	MLS supplies one map as group gear of your route. To aid in your navigation skill development and map reading skills, it is strongly recommended to have your own map of the area. If you own a set of AMC maps, please bring them to MLS. Your instructors will inform you on Wednesday the map you'll need of the area. Maps sets are available for purchase at Highland Center or on the AMC website.	
AMC White Mountain Guide book	Optional	1	MLS supplies an AMC White Mountain Guide book for trip planning as group gear. You may find it helpful during your trip planning session on Wednesday evening to have additional copies.	
MISCELLANEOUS				
Head lamp or flashlight	Required	1	Headlamp is preferred, but small flashlight is acceptable. Install a fresh set of batteries and bring spare batteries and bulbs. Do not bring large D-cell battery type flashlights.	
Bandannas	Required	2–3	For sun protection, cleaning, general use	
Sunscreen	Required	1	Lotion or spray	
Whistle	Required	1	Plastic for cold weather and keep handy at all times.	
Toiletries	Required		Personal items, kept to a minimum amount. Remember, ounces add up to pounds when backpacking. Use travel sizes when possible for toothbrush, toothpaste, hand sanitizer, biodegradable soap. Women: bring feminine sanitary supplies and extra sealable plastic bags (the physical exertion may alter	

Equipment	Quantity	Comments	√
		your menstrual cycle – bring extra supplies).	
Toilet paper	Required	1	Small roll and several sealable plastic bags to carry out used toilet paper.
Lighter or matches	Required	1	Waterproof matches or a lighter in a sealed waterproof case or plastic bag.
Personal information & identification	Required	1 each	Driver's license or similar form of identification, health insurance card, and pertinent medical information (blood type, allergies, prescriptions, etc.), who to notify in emergencies, and a small amount of cash (credit cards are optional). Carry all in a plastic sealable bag.
Spare stuff sacks	Required	2	Sleeping bag size for group gear, food and bear bagging
Extra trash and plastic sealable bags	Required	2-4	For pack lining, keeping clothes/gear separate and dry, packing trash out, etc.
Personal medical supplies	Required	As Needed	You must carry your own personal medications , (prescriptions, etc.) If you carry medications critical to your life and health such as Insulin or an Epi-pen, carry a spare and keep it separate. Things can get lost, wet, or broken during a camping trip. Also, be sure to tell your instructors about any prescription medication that you may need to take and its location. *Note: MLS provides a comprehensive first aid kit for each group.
Watch with alarm	Required	1	
Bug repellent	Optional	1	Non-aerosol type
Bug net	Optional	1	June MLS is during black fly season. A bug net can be very useful in helping to protect you from getting bit by these nasty little buggers.
Trowel and hand sanitizer	Optional	1 each	One trowel and one bottle of hand sanitizer are provided as group gear, but you may wish to bring you own for personal use.
Hiking poles*	Optional	1	Trekking poles or a walking stick aid with balance and can help to distribute the weight of your load between your the legs and arms. These can be an invaluable tool for river crossings.
Parachute Cord	Optional	1-50 ft	Has multiple uses and benefits for repairing items
OTHER ITEMS: (IF SPACE AND WEIGHT PERMITS)			
Extra clothing	Optional		Depending on your own heat-

Equipment	Quantity	Comments	√
		regulation, you may opt to bring a few additional items. Keep weight to a minimum	
Ear plugs	Optional	To help you sleep or maintain quiet.	
Notebook	Optional	1 Small notebook and pen/pencil for journaling your experience.	
Camera	Optional	1 Small camera in waterproof case.	
Binoculars	Optional	1 Lightweight models	
Camp chair	Optional	1 Backpacking chair or small foam pad to sit on when in camp.	
Backpacking tent	Optional	1 MLS supplies 3 or 4 person backpacking tents as group gear. Some people prefer to bring their own personal tents. However, using your own tent in the field will depend on the hiking route and the group's decision for sleeping arrangements.	
Personal readings	Optional	Minimum Poetry or reading material that might enhance your experience.	
PERSONAL ITEMS: (FOR WEDNESDAY AND SUNDAY AT THE HIGHLAND CENTER)			
Change of clothes	Optional	As needed You will be in a classroom environment on Wednesday and may prefer more comfortable clothing. You may prefer change of clothes for your travels after the program ends on Sunday.	
Shower items	Optional	As needed Showers are available on Wednesday at the Highland Center, but not on Sunday. However, coin-operated showers are available at the Crawford Depot, (just a 5-minute walk from the Highland Center).	
Snacks	Optional	As needed MLS supplies lunch and dinner on Wednesday of the program at the Highland Center. You may want additional snacks during the classroom sessions on Wednesday and after the program on Sunday.	
MLS GROUP GEAR: (EXPECT TO SHARE IN THE EFFORT OF CARRYING AND CARING FOR GROUP GEAR)			
Tents	Required	2-3 3 or 4 person tent package (with rain fly, poles and stakes), depending on the group's decision for sleeping arrangements.	
Camp gear	Required	1-2 Lightweight tarp(s) for shelter, bear bags (or bear proof containers), and rope.	
Cook and kitchen gear	Required	 Cook pots, food filter screens, pot scrubbers, and backcountry soap.	
Stoves and fuel	Required	2 2 stoves per group with appropriate fuel bottles and/or canisters	
First Aid kit	Required	1 A comprehensive first aid kit.	
Trowel	Required	1 One per group is provided.	
Hand sanitizer		You may wish to bring your own.	
Water carrier	Required	1 A large volume water bag for hauling	

Equipment	Quantity	Comments	√
		and storing water in camp.	
Water purification	Required	1	MLS uses iodine based water purification tablets. Chlorine based water purification solution is available in the case of allergies.
Breakfast and dinner food	Required	3 days/ nights	MLS supplies food and meals for the group breakfasts and dinners.

ITEMS YOU SHOULD NOT BRING: (THESE ITEMS WILL NOT BE ALLOWED IN THE FIELD)	
ITEM	COMMENTS
Leisure books and magazines	
Large musical instruments	
Cards and games	
Electronic devices	MP3 Players, cell phones, games, radios. Small cameras are an exception
Lantern or large flashlight	
Illegal drugs	
Alcohol	
Cigarettes	Or other tobacco products
NOTE: SMOKING IS NOT ALLOWED AT AMC FACILITIES OR DURING AMC PROGRAMS.	

LUNCH RECOMMENDATIONS FOR MLS

(These lunch recommendations are for the field portion of the program)

Experienced backpackers generally choose to graze on a selection of foods throughout the day instead of having a heavy mid-day meal. You will burn more calories each day than you may use too. So, bring more food than you would eat at home. A good diversity of items listed in the “luggage” section can play a more important role between breakfast and dinner than more traditional lunch foods.

Keep in mind:

- Easy – Your food should be quick to prepare and easy to eat while hiking.
- Durable – Bring items that won’t spoil or suffer too much from being stuffed in your pack.
- Light – You should not skip on food, but you should think about weight. Avoid foods with a high moisture content (bring dried fruit instead of fresh) and get rid of any unnecessary packaging.
- Energizing – Focus on complex carbohydrates and proteins, not simple sugars like candy.
- Tasty – Bring foods you like and that will be appealing to you even if you’re tired.

“**Vehicles**” – Pitas, bagels, sturdy crackers, tortillas, etc.

“**Passengers**” – Peanut Butter, jelly, honey, dried hummus, tuna, cheese (hard cheese will last longer), pepperoni or salami, mustard or salsa (new wave backpackers like to add flavor).

“**Luggage**” – GORP or other trail mix, nuts, dried fruit, vegetables (carrots or other hard vegetables work best), granola bars or energy bars, fig bars, pretzels, hard candies, candy bars, cookies, pop tarts, drink mix, oranges or apples.

Leave No Trace & Backcountry Ethics

Wildlands attract us for many meaningful reasons. For some, they possess the beauty, mystery, serenity, and tranquility we often lack in our day-to-day lives and landscapes. For others, they represent the true meaning of “wild:” untamed, untouched, and untrammled. For most of us, however, the wildlands we travel to are not virgin territory. They are instead filled with well-traveled trails, rivers, and campsites that *many* have used before us, and may even be within the bounds of a state or national park or forest.

While the wilderness may seem rugged and permanent, it is actually an inherently fragile environment that has evolved over thousands of years. Ecosystems can be drastically altered in just minutes. And while the impact of one or two visitors may be minimal, the impact of thousands of visitors a year can be devastating for these fragile environments. Some would say that we are *loving our wilderness to death*, and if our practices don’t change, we will destroy much of the natural wilderness we love to experience. Specialized ecological processes can take many years to complete, especially in fragile environments such as above treeline, but can be undone in moments by the careless actions of outdoor recreators.

Our outdoor recreation can be the cause of many detrimental environmental impacts that we unknowingly contribute to while we experience the wilderness. Because humans have already drastically altered so much of the world’s wildlands, it is increasingly important that we learn about backcountry ethics, and learn specific minimal-impact travel skills. A knowledge and deep understanding of the importance of backcountry ethics and minimal impact skills that the AMC promotes is essential for all of our outdoor leaders. Furthermore, it is the leader’s responsibility to impart this knowledge to group members so that they too will act appropriately.

When you prepare to take a group into the wilderness, you must take into consideration *Leave No Trace* (LNT) practices and techniques. These have become the national standard for outdoor and wilderness travel. Further information about LNT and LNT teaching materials can be found on the non-profit program’s website, www.lnt.org. For further discussion of LNT techniques and for information regarding climates not found in the Northeast, [Soft Paths](#), by Bruce Hampton and David Cole (published by NOLS), is a great resource. The AMC has a partnership with Leave No Trace, Inc and is one of the organizations that teach LNT Trainer and Master courses. For information about LNT training, see the “Education” section of the AMC’s website, www.outdoors.org. For now, however, familiarize yourself with the *Leave No Trace* program by reading more about it in the following section of this manual.

The Principles of Leave No Trace

Leave No Trace, Inc. is a national non-profit organization that aims to promote awareness about the importance of the minimal impact skills mentioned above. The program is based upon seven main principles that every outdoor leader should know, understand, and use. These seven principles are based upon basic common sense—you will probably find that you already practice many of them.

The following list is an excerpt from Leave No Trace, Inc.'s website, www.lnt.org:

1. Plan Ahead and Prepare

- Know the regulations and special concerns for the area you'll visit.
- Prepare for extreme weather, hazards, and emergencies.
- Schedule your trip to avoid times of high use.
- Visit in small groups. Split larger parties into groups of 4-6.
- Repackage food to minimize waste.
- Use a map and compass to eliminate the use of marking paint, rock cairns or flagging.

2. Travel and Camp on Durable Surfaces

- Durable surfaces include established trails and campsites, rock, gravel, dry grasses or snow.
- Protect riparian areas by camping at least 200 feet from lakes and streams.
- Good campsites are found, not made. Altering a site is not necessary.

In popular areas:

- Concentrate use on existing trails and campsites.
- Walk single file in the middle of the trail, even when wet or muddy.
- Keep campsites small. Focus activity in areas where vegetation is absent.

In pristine areas:

- Disperse use to prevent the creation of campsites and trails.
- Avoid places where impacts are just beginning.

3. Dispose of Waste Properly

- Pack it in, pack it out. Inspect your campsite and rest areas for trash or spilled foods. Pack out all trash, leftover food, and litter.
- Deposit solid human waste in cat holes dug 6 to 8 inches deep at least 200 feet from water, camp, and trails. Cover and disguise the cat hole when finished.
- Pack out toilet paper and hygiene products.
- To wash yourself or your dishes, carry water 200 feet away from streams or lakes and use small amounts of biodegradable soap. Scatter strained dishwater.

4. Leave What You Find

- Preserve the past: examine, but do not touch, cultural or historic structures and artifacts.
- Leave rocks, plants and other natural objects as you find them.
- Avoid introducing or transporting non-native species.
- Do not build structures, furniture, or dig trenches.

5. Minimize Campfire Impacts

- Campfires can cause lasting impacts to the backcountry. Use a lightweight stove for cooking and enjoy a candle lantern for light.
- Where fires are permitted, use established fire rings, fire pans, or mound fires.
- Keep fires small. Only use sticks from the ground that can be broken by hand.
- Burn all wood and coals to ash, put out campfires completely, and then scatter cool ashes.

6. Respect Wildlife

- Observe wildlife from a distance. Do not follow or approach them.
- Never feed animals. Feeding wildlife damages their health, alters natural behaviors, and exposes them to predators and other dangers.
- Protect wildlife and your food by storing rations and trash securely.
- Control pets at all times, or leave them at home.
- Avoid wildlife during sensitive times: mating, nesting, raising young, or winter.

7. Be Considerate of Other Visitors

- Respect other visitors and protect the quality of their experience.
- Be courteous. Yield to other users on the trail.
- Step to the downhill side of the trail when encountering pack stock.
- Take breaks and camp away from trails and other visitors.
- Let nature's sounds prevail. Avoid loud voices and noises.

Applying the Principles of Leave No Trace

Aside from being aware of the specific Leave No Trace principles, a general knowledge of why we practice low-impact backcountry travel is essential. Below you will find both general explanations of why specific LNT principles are important for both people and the environment, and some useful guidelines with which all outdoor leaders should be familiar.

1. Plan Ahead and Prepare:

Why? Extensive planning and preparing before the trip is a crucial element of your leadership. This step is not just about safety—i.e. planning alternative routes that could be used in the case of an emergency. In terms of LNT, good planning and preparation for your trip will reduce the chance that your group may be tempted to make an environmentally unsound or unethical decision in a desperate moment. Leaders who have taken the time to prepare well for their trip and have taken all LNT principles into account *before* the trip will have a much better sense of how to most appropriately lead their group while following a good environmental ethic.

Guidelines:

- Educate yourself about the area you will be traveling in—are there any endangered species there? Are there any rules about group size or fires, or any fees at shelters?
- Repackage all food to eliminate excessive garbage in the backcountry and bring the correct amount of food so that burying surplus food is not a temptation.
- Avoid congested areas whenever possible, especially at peak times such as Memorial Day weekend, to avoid crowds and to respect the wildlife in the area.
- Use proper equipment, and understand the potential detrimental effects your equipment may have on the environment if used improperly. For example, carry stoves so that you will avoid making fires, and carry trekking poles on your pack instead of using them while hiking through areas in which they are not needed so as to reduce rock scarring and contributions to muddiness and/or erosion.
- Make sure you read the weather report before the trip, so that you will be aware if hypothermia or heat exhaustion will be a threat—these are debilitating conditions that will impair good judgement.

2. Travel and Camp on Durable Surfaces:

Why? Traveling and camping on durable surfaces is very important so that we minimize long-lasting impact on the environment. Leaders should recognize which land surfaces are durable and are therefore resistant to impact (such as grasses, leaf litter, rocks, sand, and snow). Leaders should also recognize which

surfaces are less resistant to the impact of trampling—marshy and boggy areas, mosses, low growing shrubs, and small seedling plants. Trampling will cause vegetation damage and soil erosion in every environment. It creates and enlarges trails and campsites, removes vegetation and leaf litter needed to hold soils in place against loss to wind and rain, hardens the ground and destroys habitat for decomposers, and eventually takes the *wild* out of the wilderness.

Guidelines:

- Remember that good campsites are found, not made. Plan to spend some time looking for a good site that is relatively flat and clear instead of altering an area to make it a good campsite for your group by pulling up small shrubs and plants.
- Keep group size small—LNT, Inc. advises that groups should not exceed ten people for overnight trips, and designated wilderness areas often have similar regulations. Remember to concentrate impact in popular areas and disperse impact in pristine areas—that is, follow the same route from your campsite to the water source in popular areas, but change your route to the water source in pristine areas.
- Stay on already heavily impacted trails, and spread the group out when bushwhacking. When your group moves to the side of the trail to let others pass, try to find durable surfaces to stand on if possible.
- It is a natural tendency to try to walk around muddy sections of the trail and not directly through, even when wearing heavy hiking boots. As a leader, it is especially important that you walk in the center of the trail despite the mud so that you set an example for your group. Keep an eye out for this problem, and don't hesitate to speak up if you see group members avoiding the mud. If you know beforehand that you will be traveling through mud, suggest that group members bring gaiters.
- If a tree has fallen across the trail, go under it or over it if possible, instead of bushwhacking around it.
- In alpine zones (above treeline), pay particular attention to where you step in the fragile environment that surrounds you. Stay on trails, and be careful not to step on any plants as one small plant may have taken many years to develop in such a harsh environment.
- When you break camp, re-cover scuffed up areas with leaf litter or pine needles, replace rocks or branches you moved, and remember to make it look like no one slept in that spot the night before.

3. Dispose of Waste Properly:

Why? In the backcountry, waste—namely food waste and human waste—cannot be picked up by the garbage truck or flushed down the toilet, never to be seen again. Most food and human wastes will biodegrade eventually, but natural biodegrading processes cannot keep up with the pressure that increasing human impact puts on the environment. Furthermore, the waste left in the backcountry is unsightly, and the scent of this waste attracts wild animals which in turn

become much more of a nuisance, and much more dangerous, once accustomed to the smell of the waste humans leave behind. In order to be good stewards of the wildlands, we must pack out everything we have packed in, and dispose of all human waste properly.

Guidelines:

- As a general rule, carry out everything that you carry in, and pick up all litter you see that others have left behind. Even trash that seems to be biodegradable, like orange peels or apple cores, must be carried out.
- Use a bit of cheesecloth or a screen to filter out bits of food before you scatter your dishwater. Throw these bits into your trash bag.
- Be especially careful to carry out all toilet paper and hygiene products—how many of us have had the unpleasant experience of coming across soiled toilet paper on the trail, especially in popular areas like the White Mountains?
- Plan meals that involve minimal garbage, especially messy and smelly garbage.
- Fires should not be used to dispose of food waste, as scraps and smells will still attract animals. Likewise, buried food scraps are quickly dug up by animals that will disturb the land by their digging.
- Read and follow any instructions regarding the use of an outhouse. Never dispose of any type of trash in outhouses—these facilities are costly and time-consuming to maintain. Outhouses are intended for human waste only, and putting trash inside them decreases their effectiveness.
- Avoid polluting water sources by urinating and using cat holes at least 200 feet away from any water. Remember—water sources must be kept clean for future users.

See *Human Waste and Hygiene* section for a more extensive discussion of proper human waste disposal.

4. Leave What You Find:

Why? Many of us visit the wildlands because we enjoy getting to know the land—understanding its natural and human history, and discovering rare treasures that cannot be found in more populated areas. But because so many of us enjoy this aspect of the wilderness, it is important that we do not take the rocks, feathers, antlers, plants, or human historical artifacts that we find. We must leave them there for others to enjoy, as removing these items may disrupt the environment. Photos, drawings, prose, and memories should be your only souvenirs.

Guidelines:

- When traveling in an area rich with human history, “Take only photos, leave only footprints.” It is important for leaders to make sure that their groups do not alter areas of historical or cultural value.

- Remember that the Archeological Resources Protection Act and the National Historic Preservation Act protects all artifacts of historical value, and that excavating, disturbing, or removing these things from public lands is illegal.
- While picking vegetation might be a simple pleasure, remember that the wildlands are for everyone (and everything) to share—that very branch or flower could be another’s home or food source.
- Do not build cairns or mark trees with blazes unless authorized to do so.
- When blueberries or other edible fruits are found and properly identified, feel free to taste a few, but remember that over-harvesting could negatively impact the growth of new plants and that animals depend on them for food.
- Never bring new plants or animals into the wildlands—invasive species can cause large-scale, irreversible changes to ecosystems by out-competing and eliminating native species.

5. Minimize Campfire Impacts:

Why? Campfires have long been the cause of too much impact on the environment in one small location. They cannot be justified for the sake of tradition or their beauty. In most cases, campfires are unnecessary, time-consuming, and should not be used—food should be cooked with a camp stove, and even s’mores can be made with the camp stove’s flame! Firewood collection leaves the ground barren and trees scarred. Large fire rings with partly burned trash, food, and logs are unsightly. And most importantly, campfires are often the cause of wildfires. If you must make a fire, remember that using LNT techniques can eliminate the lasting impacts of a campfire.

Guidelines:

- Always carry appropriate clothing and equipment, a stove and sufficient fuel, so that building a fire does not become necessary.
- Never make a fire where fires are not permitted, and make sure to use an established fire ring or a LNT technique, such as a fire blanket, pan, or a mound fire, where fires are permitted.
- Use your creativity to come up with alternatives to having a fire even where they are permitted—perhaps the group would enjoy sitting around a candle lantern while telling stories or sharing their thoughts about the trip.
- Make sure you only use small sticks on the ground for your fire—never break branches from trees or shrubs for firewood.
- Never leave a fire unattended, even for a minute. Keep water close by in case it gets out of hand.
- Before you go to bed, put the campfire out completely by making sure it is cool to the touch. Make sure that only ashes remain where your fire was. Scatter ashes away from the campsite.

6. Respect Wildlife:

Why? For many of us, observing wildlife is one of the greatest pleasures we could hope to enjoy when we spend time in the wildlands. Unfortunately, much of the world's wildlife faces threats from habitat loss and fragmentation, invasive species, pollution, over-exploitation, poaching, and disease. Although protected lands offer a refuge from some of these problems, they cannot protect all wildlife everywhere. In order for any animal to survive, it must be able to successfully overcome the constant challenges and threats of the world in which it lives. The presence of humans can often interfere with the daily routine of animals, causing them to flee, attack, abandon their young or habitat, or become dangerously attracted to human food or trash. For example, bears that begin to hang around campgrounds looking for food are often either removed or destroyed. For these reasons, outdoor recreators must act responsibly and learn to travel and camp in a way that will not disturb the surrounding wildlife.

Guidelines:

Always observe or photograph an animal from a safe, non-threatening distance. If the animal noticeably changes its behavior as you are watching it, back off until it resumes its former behavior.

- Be aware that many larger mammals (for example, deer and moose) use human-made trails too. Often these trails are used because they present the path of least resistance. Always stay alert when traveling on trails, and move out of the way if an animal comes charging down the trail.
- Avoid quick movements and direct eye contact with animals at all times.
- As a general rule, travel quietly except when in bear country. In bear country, make noise so that bears will be aware of your presence and get out of your group's way.
- If you are traveling with any small children, make sure they too understand how to respect wildlife. Only bring pets with you if you know that you can keep them under control at all times.
- Know the sensitive times such as mating and nesting and particular habitats of the animals in the areas you wish to travel in—avoid these times.
- Store all food, smelly trash, toiletries, bug spray, sunscreen, and soiled toilet paper and hygiene products securely in stuff sacks that hang from a tree during the night. These *bear bags* will deter large and small animals if hung properly.

7. Be Considerate of Other Visitors:

Why? Outdoor recreation is pursued by people of all types with all sorts of different motivations. Some seek solitude, others companionship and social interaction. Because we must share the mountains, rivers, lakes, and forests with other outdoor enthusiasts, it is important that we remember that our usual

manners and etiquette toward our neighbors are still applicable even though we are away from home. When you are considerate of others, others will be considerate of you and your group, and all will be able to enjoy the wilderness in their own way.

Guidelines:

- Always maintain a cooperative and friendly attitude with the people you run into on the trail, or near your campsite. Remember that in emergency situations, we rely on the people we run into for help.
- Keep your intuitive perception tuned in to your conversations with other outdoor enthusiasts—sometimes a friendly and inquisitive conversation is well-received, and other times those you meet may prefer the peace, quiet, and solitude of the wilderness.
- Instruct your group to step to the side of the trail when needed to let smaller or faster groups pass.
- If possible, take trail breaks and camp away from the sight of other visitors.
- Never bring any electronic equipment, especially things that make noise, into the wilderness solely for your own pleasure. Many people feel that these objects don't belong in the wilderness setting and will be offended by their presence. If your group carries a cell phone, it is for emergency use only.
- Keep voices low and pets quiet—let this be a time to tune into nature.

Human Waste and Hygiene

As a group leader, part of your responsibility in following the practices of *Leave No Trace* is to address the issues of human waste and hygiene with your group—preferably *before* the trip. Because human beings represent a significant source of contamination to backcountry water supplies, it is the leader’s responsibility to inform participants of proper procedures, even on day hikes. Not only is this responsibility environmentally important, it is also important for the emotional safety of group members who may feel uncomfortable asking questions or discussing human waste and hygiene with new acquaintances. Try to speak with ease and humor about this topic to help people overcome any nervousness and teach them how to responsibly dispose of their own waste while in the woods. Keep the following points in mind:

- If there is an outhouse or composting toilet, use it. Be sure to read and follow any instructions provided and do not dispose of trash in outhouses or composting toilets.
- If there are no facilities, waste should be buried in a “cat hole,” about 6 inches deep, at least 200 feet away from any water, trail, or campsite.
- Whenever possible, stay 200 feet from water sources when you urinate.
- Buried toilet paper is often dug up by animals and so should be packed out in double zip-lock bags. If you feel adventurous, natural alternatives to toilet paper can be used—leaves, smooth rocks, sticks or snow can work well. A simple system is carrying a small roll of toilet paper in a zip-loc bag along with another zip-loc bag for used TP.

In addition to making sure everyone is following minimal impact practices, leaders may want to deal with other issues related to human waste and hygiene. Because most of us are so accustomed to the accessibility and ease of use of modern bathrooms, “toileting” in the wilderness can be a major area of concern. Understanding the techniques of eliminating body wastes and maintaining privacy—especially when part of a group—can be problematic if not addressed explicitly. The following tips may be useful, especially to beginner hikers and backpackers:

- The squat position may be difficult if you not accustomed to it, and can become unbearable if maintained for a long time. If there is a tree nearby, hold on to it and balance over your cat hole.
- For a natural toilet seat, dig your cat hole just behind a small log. You can sit on the log while extending your buttocks over the cat hole.
- Dig a hole near something you can lean back into. This can be tricky and may require something soft between your lower back and the log or rock to prevent scrapes.

When it is cold in the evening, a good way to stay warm is to consume a hot drink before going to sleep. But remember, input equals output. If “nature calls” routinely around 2 a.m. at home, then it will likely call in the wilderness, too. It is important to heed the call in order to continue with a good night’s sleep. While it might be tough to motivate yourself to get out of your sleeping bag to urinate, chances are you will feel much warmer and much more comfortable afterwards. Head outside or use a well-labeled “tent bottle.” Women can use a special anatomically designed funnel available through backpacking shops or other outdoor retailers. If you anticipate having to urinate during the night, it’s a good idea to prepare your “indoor bathroom” before you go to sleep: place your bottle (and funnel), headlamp, and toilet paper with plastic bag if needed, nearby. Be careful of your sleeping bag and dispose of wastes properly in the morning.

Due to a change in diet and/or basic inhibitions about toileting in the outdoors, many people become constipated while backpacking. This is not a real problem for one- or two-day trips, but on longer trips this can become painful and potentially dangerous. As a leader, you can help participants to avoid “inhibition constipation” by discussing the topic openly and putting group members at ease with dealing with human waste and hygiene in the backcountry. You can also recommend the following:

- Try drinking something warm shortly after waking up (many find that having caffeine in this beverage makes it doubly potent, although there are good reasons to limit caffeine intake in the backcountry).
- Take the time to find a pleasant spot far enough away from camp that it affords absolute privacy.
- Allow yourself plenty of time to relax and let nature take its course. If you’re on a trip with a tight schedule, plan to wake earlier, so you’ll have enough time.

Girls and women have some additional concerns that both male and female leaders should understand before the trip:

- Menstrual periods can be a concern for women unused to dealing with them in the woods. Encourage trip members to share information about menstruation with the trip leader.
- While some women are relatively unaffected by their menstrual period, others experience a variety of side-effects including painful cramps. Mild exercise can be good for cramps, but avoid heroics if you have severe distress. If necessary, bring medication.
- Always carry a full supply of sanitary products. Even women with menstrual cycles like clockwork often find that altitude, heavy exercise, or

just plain excitement can alter their normal pattern. Even if you don't end up using your tampons or sanitary napkins, there may be another, less-well-prepared woman in the group who will be very grateful for your foresight.

- Do not bury used sanitary napkins or tampons, as they are not biodegradable and will attract animals. As with used toilet paper, pack them out in double zip-lock bags, or use an old bread bag which allows you to knot off a section after it is filled. Adding crushed aspirin to the inner bag will help control odors and avoid attracting animals. Never leave used tampons or sanitary napkins in a tent—hang them in the bear bag.
- Especially on extended trips, it is important to keep the vaginal area clean. A lack of opportunity for personal hygiene can lead to urinary tract infections (UTIs) and/or vaginitis, especially in women who have a history of being susceptible to either condition. UTIs are particularly dangerous as they can lead to kidney infection if left untreated. Avoid tight pants and shorts and synthetic underwear and be sure to change underwear at least every few days. If possible, sleep with light layers of clothing so air can circulate. As a leader, you may want to encourage women to use toilet paper and pack it out in order to maintain personal hygiene.
- On extended trips or trips to foreign countries, female participants may want to ask their doctors about recommended prescription items. They should explain that they are making up a backwoods medical kit and may need to know how to deal with any symptoms or problems before returning home.

Using Backcountry Regulations as Your Guide

Most of the wilderness areas we travel to have some type of land management in place. When you use backcountry regulations as your guide, you can be sure that you are not only obeying the local regulations, you are also acting in accord with the *Leave No Trace* principles. Regulations exist for good reason, and any local ranger will be happy to inform you as to the reasons why the regulations are in place. As a trip leader, you should be aware of land management practices and regulations in any area where you will be taking a group. This means understanding guidelines for the region as a whole, for campsite selection, and for correct trail use.

Understanding the Region:

Some wilderness destinations are more popular than others. As such, they receive most of the outdoor recreation traffic. If you are able to avoid these areas, you will escape the crowds, enjoy untrammelled wilderness, and will not contribute to the degradation and crowding of popular sites. If you do choose to use high traffic areas, use them with care and be sure to respect regulations designed to disperse wilderness users and protect fragile ecosystems. In the White Mountain National Forest, for example, the United States Forest Service is responsible for identifying areas requiring protection. These areas are called Forest Protection Areas (FPA, formerly Restricted Use Areas). FPA regulations can be summarized as follows:

No camping and no open fires above treeline, within 200 feet of a trail or stream, or within 1/4 mile of certain roads, rivers and sites, such as huts. In some areas, no camping is allowed; in other areas camping may be by permit only. Group size is limited to ten.

Before you plan your trip, check for regulations. Understand that FPA designations change annually based upon levels of area use and need for protection. Also, be aware when hiking through areas managed by different organizations—State Parks and Recreation Areas have separate regulations. Information about land management is often contained in the guidebooks for the local region; however, you can always check with a District Ranger Office or the AMC for details.

Picking a Campsite:

In many areas, camping is allowed only in designated sites. This concentrates environmental impact to one small area such as a clearing, tent platform, or a shelter. These designated sites are usually found in heavy use or fragile areas. Extra care may be required to follow local regulations—you may need a campsite permit or reservation, and group size may be limited. Be prepared to share the area with others. And should the area be filled, be prepared to move on to another location.

In other areas, campsite impact is minimized by dispersing use, allowing you to pick your own campsite. When this is the case, send small scouting parties to find suitable locations; don't march the entire group through the woods. Avoid previously used areas and attempt to hide your campsite from view. Camp at least 200 feet from any trail or water source, and pick a place in which you can be dry and comfortable without engineering the site. Protect the site by removing your hiking boots and walking around in your camp shoes/sandals. Don't follow the same pathways around camp; spread out when you enter or exit the trail to go to your camp. Spread out your tents and choose a separate location for your kitchen area. Limit your stay to one night in the same location, if possible. By moving camp each day, you will disperse your impact, which allows sites to recover more quickly.

Closed Trails:

It is important for a trip leader to check in on trail conditions before every trip—even to an area or trail he or she has hiked recently. Trails can suddenly be closed for environmental restoration or because conditions are too dangerous, and it is important to adjust your plans according to any trail closures. Especially in popular hiking destinations such as the White Mountains, trails are closed periodically so that the land has a chance to restore itself from overuse and impact. Never hike or bushwhack on a trail or in an area that has been closed to the public—after all, it has been closed for a good reason.



Map and Compass

A good map, an orienteering style compass, and a guidebook won't get you anywhere without the most essential component of wilderness navigation -- your brain. The best way to avoid getting lost is maintaining an awareness of where you are and realizing immediately if you are no longer where you think you should be. It is important to examine your map and the specific trails you will be hiking before heading out. This preparation enables you to compare your expectations with the actual surroundings. This pre-investigation prepares you to deal with the unexpected occurrence of getting lost. In case of conflict between the two, or in situations where the surroundings are confusing (as in a five-way unmarked trail junction) or obscured (as in a white-out), proper use of a map and compass will point you in the right direction. If traveling in the Whites, make sure you read your AMC White Mountain Guide before you hit the trail; there is a great deal of general information about hiking and the White Mountains, and there is also very specific information about trails and peaks.

MAPS

The most important thing about your map is to use it frequently. Carry it in an accessible pocket and take it out at every break, trail junction, and signpost.

Maps are very useful for identifying summits and other features of the landscape. They are basically two-dimensional, miniaturized representations of the physical characteristics of a particular area. Since a map is smaller than the actual landscape, it must contain less detail. The scale of a map is conveyed by a number comparing map units over ground units. A scale of 1:250,000 has 1 map inch for every 250,000 ground inches, or about 4 ground miles for every map inch. This is a very small scale and is not particularly useful for wilderness navigation. Better choices are 1:62,500 maps, also called 15 minute series, and 1:24,000 maps, also called 7.5 minute series. A minute is 1/60 of a degree of latitude or longitude. A degree of latitude is about 70 miles so a minute is about a mile. Maps in the 15-minute series show about 1 ground mile for every map inch and the 7.5 minute maps show 1 mile in 2 1/2 map inches.

CONTOUR LINES

Some of the most important information contained on a map is shown by the contour lines. These lines show information about the elevation and shape of the terrain. Each contour line traces a line which stays at the same elevation. If you could float your favorite peak in the ocean, you could draw a line around the peak where the land and water meet. If you then pushed the summit down 100 feet, you could draw another line. If you repeated this until you reached the top, you would have contour lines all around your peak. If you then looked at those lines from straight above, you would see what they would look like on a map.

CONTOUR INTERVALS

Depending on map scale, the level of detail, and the amount of elevation change in the area, different maps will show contours at different intervals. You can look on the map margin for the contour interval or you can look at the contour

lines themselves. Every fifth line will be slightly darker and labeled with an elevation. When planning a hiking trip, you can compare the parking lot elevation with the summit elevation and get a measure of the altitude to be gained. But to truly know how much up and down your day will hold, you have to follow the trail on the map and see how many contour lines it crosses and whether you are ascending or descending.

CONTOUR SHAPES

If the contour lines are very close together, you know the terrain is steep. If the lines form "V" shapes, you can tell that it is depicting a ridge (if the "V" points downhill) or a ravine or streambed (if the "V" points uphill). Summits tend to look like a collection of concentric shapes with a small triangle in the center. Remember that changes in elevation smaller than the contour interval will not show on the map. You can spend a lot of time hiking up and down small bumps even though your trail doesn't cross any contour lines on the map.

MAP SYMBOLS

Become familiar with the symbols used on your maps to indicate various features. Water is usually blue, some maps show vegetated areas in green and above treeline areas in white or brown. Practice relating your map to what you see around you—notice terrain changes and stream crossings as you progress. And to make your map most useful, refold it to expose your area of travel and put it in a zip-locking bag—this protects the map from rain and wind.

THE COMPASS

The simplest function of a compass is to give you a reliable pointer. The magnetic needle of the compass will always align itself with the magnetic field of the earth, which varies with your location. There is a difference between true North and the magnetic field or magnetic North. That difference is called the declination. The direction and amount of declination will vary from one location to another and so it always appears on topographic maps. This difference is called declination. In New England, the compass needle points about 18 degrees to the west of true north. Large metal objects, such as automobile engines, can deflect compass needles, also.

ORIENTING THE MAP

Since you can use your compass as a pointer to determine magnetic North, you can also use it to align your map so it is oriented to match your surroundings. The best thing you can do at home to prepare for this is to add magnetic North lines to your map. Find the declination diagram in the margin of the map, place a ruler carefully along the declination line and draw a straight line. Then use the ruler to draw a series of parallel lines across the map. Some AMC maps already have light brown declination lines; making them darker is helpful. Once you have done this, all bearings and readings will be based on magnetic North without having to convert to true North, so from now on we will just refer to magnetic North as North. When you need to orient the map, line up the declination lines with the North needle of the compass. Then use your brain and eyes--look around to see if features shown on the map match your surroundings.

COMPASS DIRECTIONS

You can also use your compass to determine directions other than North. The housing of your compass needle is a circle. There are 360 degrees in every circle, and these are marked on the rim of the housing, with an arrow on the bottom of the housing aimed at 0 degrees or North. The compass housing can be rotated on the base plate of the compass. The rectangular base plate has an arrow on it labeled *direction of travel*. To find north, turn the housing so that the housing arrow lines up with the direction of the travel arrow; then turn the compass so that the needle lines up in the housing arrow. If you then turn yourself, holding the compass in front of you at waist level - but not too close to metal buckles-, you will be facing north.

TAKING A BEARING

If you raise your right arm when you are facing north and point into the woods, you will be pointing east. Pick a tree along the line you are pointing and turn towards it. Point the direction of the travel arrow towards your tree and rotate the housing so that the needle falls in the housing arrow. Now get the degree reading from the housing. It should be 90 degrees. Not only is 90 degrees East, it defines a right angle. The bearing you have just determined is the angle in degrees between North and your direction of travel. An angle of 180 degrees would be a line exactly opposite North. Look at the housing and you'll see that 180 degrees corresponds to South. If you are following a bearing such as 90 degrees and wish to reverse your direction, take a *back bearing* by adding 180 to the bearing to determine your new direction of travel. You'll now be heading 270 degrees or West.

FOLLOWING A BEARING

Now that you can take a bearing in the field by pointing, aligning, and reading, you can follow a bearing. Choose a bearing and rotate the compass housing with the travel arrow pointing straight ahead and turn yourself until the needle is in the housing arrow. You are now pointing towards your destination. Rather than trying to follow your bearing with your head down and your eyes on the compass, look ahead and find a landmark that is in your direction of travel. You can now walk to it, even if you have to go around trees, rocks, or lakes. Once you get to your landmark, recheck your bearing, look along your direction of travel, and choose another landmark.

USING LANDMARKS

One way to speed up your progress is to pick two landmarks, one closer than the other. Walk to the first one and, while standing at it, pick another landmark beyond the second one. Go to the next landmark, stand at it and pick another one beyond your next landmark. Since two points define a straight line, and since you always have two points to connect, you should be traveling in a straight line through the woods. To see how accurate you are, try following a large triangle through the woods. Follow a bearing of 90 degrees for 20 paces, then add 120 degrees to your bearing and follow a 210-degree bearing for 20 paces, then add 120 degrees and follow a 330-degree bearing for 20 paces. You should end up where you started.

AIMING OFF

In most situations where you are following a bearing, you will be off-trail and/or in a white-out. The above triangle adventure may have shown you that many obstacles will be in your path attempting to push you off your route. Not to worry. Since you are off-trail, you can go wherever you want as long as you are aware of where you are. (Note: travel in the alpine zone should be on-trail whenever possible.) In fact, if you are following a bearing to a destination, in many cases you should purposely aim your bearing to one side. For instance, if you are off-trail and plan to intersect a trail with a shelter on it, and your bearing was directly on the shelter, which way do you turn if you get to the trail and don't see the shelter? By purposely aiming-off, you no longer have to guess which way to turn.

TAKING BEARINGS FROM A MAP

You can also take bearings from a map, even if the map is not oriented. Line up the edge of your compass base plate with your starting point and destination, with the travel arrow pointing in the direction of the destination. Turn the compass housing until the housing arrow is parallel with the magnetic North lines you drew on the map. Read your bearing where the travel arrow intersects the housing.

TRIANGULATION

You can take bearings from two known distant points and plot their intersection to determine your location. For instance, choose the summits of two known peaks, preferably ones about 90 degrees apart. Using your compass, point, align and read the bearing for each peak. Determine the back bearing by adding 180 degrees to one bearing; set this new bearing on the compass, place the compass base plate with the edge aligned with the summit and rotate the entire compass until the housing arrow is parallel with the magnetic lines drawn on the map, and draw a line. Now repeat for the other peak. You should have two lines which intersect at your approximate location. Try this from a summit you have climbed and see how close you can get. You can also take bearings on other peaks, plot those bearings on the map and identify other summits.

USE YOUR HEAD

And finally, be aware of your surroundings, know what to expect on your trip, and stop and think if something doesn't seem quite right. If you do get lost, you'll be happier if someone knows where you were going and when you should return. Use hiker registers where available and make sure you sign in when you return. With a map, compass, guidebook --and a brain to make it all work -- you may be a little unsure of where to go next, but you will never really be lost.

Nutrition and Menu Planning

Planning a well-organized backcountry experience includes spending a great deal of time and energy thinking about what we want to eat and need to eat. Once we are out in the backcountry, it is difficult to order out for pizza or Chinese food. A little bit of time and energy prior to leaving on a trip will often make long days bearable and evenings around the cooking pot lighthearted.

Anyone leading a backcountry trip needs to have a basic understanding of how the body uses food and what types of food the body needs in order to maintain optimum functioning during unusually stressful periods. Almost everyone who enters the backcountry for enjoyment has to rethink the way they feed themselves. We were all brought up and taught that a good hearty breakfast, lunch at noontime and a well-balanced dinner would give us enough energy to keep our body and mind sharp. Spending time in the backcountry, we need to look closely and rethink that whole concept. The backcountry leader needs to become familiar with the concept of what a calorie is. The actual scientific definition is the amount of energy required to raise the temperature of one cubic centimeter of water one degree Centigrade. The definition is unimportant; what is important is having an understanding of this unit of energy. Most bodies require 1200-1600 calories per day just to lie around quietly in bed. The average person living in an urban setting and working at a white-collar job burns approximately 1800 calories per day. The average backpacker in the White Mountains in the summer burns 3500-4000 calories on an average day. This same backpacker would consume 4000-5000 calories doing the same trip if the temperature is below freezing. Recent transatlantic explorers burned 5500 calories per day.

Obtaining the required calories is only one of the questions the backcountry leader must answer. The kinds of food and how many calories they contain need to be looked at next. Most people in today's health-conscious society have some understanding of the caloric content of many foods we commonly eat. However, nutritional information of food packaging and a basic calorie guide should be used when planning the backcountry menu.

Foods are broken down into three basic categories: carbohydrates, fats and proteins. These three food categories in their appropriate mixture will often increase morale and the general enjoyment of a backcountry group.

Carbohydrates (60%)

Most of the calories a backpacker consumes will consist of these foods. Some examples are pasta, rice, potatoes, sugar, honey, dried fruit and pudding. These foods provide the backpacker with almost instant energy. It takes approximately 15-20 minutes for the body to convert this raw fuel into energy.

Fats (25%)

These are a more concentrated form of energy and take much more time for the body to digest and convert into energy. Some examples are cheese, nuts, processed meats, non-lean red meats and most cooking oils. Fats take approximately 2-9 hours for the body to convert to usable energy.

Proteins (15%)

These are considered essential to most diets and make up a smaller percentage of your daily caloric intake in the backcountry than they might at home. This is because most foods high in protein are either too bulky, weigh too much or spoil quickly. Some examples are meats, poultry, fish, eggs and milk. Proteins take approximately 2-5 hours to digest.

The appropriate mixture of the three basic food types and the appropriate timing of their consumption is essential for the body to maintain optimal functioning for prolonged periods of exertion. Most experienced backpackers will tell you, there is no such thing as lunch in the backcountry. There may be a prolonged midday stop; however, the most commonly accepted definition of lunch is: "Lunch begins just after breakfast and ends just before dinner." This concept of frequent snacking will help the body maintain its optimal functioning throughout the day. Experienced backpackers will also tell you if you feel tired or begin to feel a little bit irritable, just drink some water and eat something, preferably carbohydrates, and you will feel an increase in your energy level and a positive elevation in your mood.

In addition to calories and carbohydrate/fat/protein breakdown, there are several other crucial concerns to keep in mind while planning a menu for a backcountry trip:

Weight: Pack weight is on every backpacker's mind. A well-planned menu should include food that weighs a total of approximately 2 to 2.5 pounds per person per day in the summertime. 8-10 days is the longest a group can reasonably go without re-supply.

Spoilage and Fragility: Due to the risk of spoilage, most meats and fresh vegetables are out of the question except for the first or second night of a trip. Food must be vacuum packed, freeze dried or canned in order to prevent spoilage. For example, margarine should be substituted for butter on summer trips. Butter will melt in a pack. Most margarine comes in plastic squeeze bottles or tubs and usually travels well. Some foods are just fragile. Apples survive; bananas don't.

Preparation: You must consider where you will be and how you will be preparing your food. Ideally, meals that can be prepared in 1 pot are best suited to the backcountry. Foods that require little cooking time are often more efficient to bring. For example, spaghetti requires approximately 8-10 minutes

boiling time; egg noodles require only 3-5 minutes boiling time, thus decreasing the amount of fuel a group will need to bring. Instant couscous just needs to be soaked in water that was brought to the boil. On average, for a group of ten adults, a 22-ounce fuel bottle will last for two to three meals with two stoves in service.

Variety: The large caloric requirements on an extended backcountry trip require that all the participants in the group like the food. If you have the same old meal every evening, folks will soon become tired of the repetition. Finding the right mix and variety of food that a group will look forward to preparing and eating is essential. Dinner, in particular, is the social climax of the day and should provide a reward for a day of hard work. If the dinner has the right mix of carbohydrates, fats and proteins but is not palatable, it won't be consumed. A little surprise, such as a spice kit with a variety of seasonings, will often solve problems with otherwise bland meals.

Special Diets: Special dietary requirements can be accommodated in the backcountry; however, they require knowledge by both the leader and the participant. If you have participants with special dietary considerations or restrictions (vegetarian, vegan, lactose intolerant, kosher, etc.), you must spend extra time in meal planning and preparation prior to departure.

Freeze Dried Foods: Freeze-dried foods have become increasingly popular over the past 10 years; however, they have some drawbacks. The process of freeze-drying often robs the food of nutritional value. Although they are light in weight, they will require large quantities of water to reconstitute as well as extended soaking times. This, coupled with their cost – approximately 5 times that of other foods – usually rules these foods out as a major supply source. These foods can help bring variety over the course of a long trip and decrease the amount of weight being carried. For example, freeze dried broccoli has approximately 2% moisture content compared with fresh broccoli with approximately 30% moisture content. Integrating these foods into an over-all menu can increase the variety and palatability of your meals.

Pulling together food groups, the types of food and the proper amount of calories takes some time and energy. It also takes some experience to prepare adequately for an extended backcountry experience. However, well-energized participants and fun, social mealtimes are well worth the effort.

Kitchen and Stove Safety

While camping overnight, hang all food and garbage from a branch in a bag. This *bear bag* will prevent small animals from eating through a pack to get to food, and it may save your food supply if a bear is in the area. Bear bags can be hung lots of ways, but they should be 10 feet off the ground and ten feet from the nearest branch. One option is to divide the group food and trash into two stuff sacks and locate a 7-10 foot long hooking stick. Then, toss a line over a sturdy branch tall enough to suspend both of your stuff sacks 10 feet off the ground. Make sure the two ends of the suspending line are long enough to coil a little on the ground. You need this excess rope to tie in the stuff sacks and haul up the food and trash. Next, tie in the first stuff sack to one of the line's ends and tow it up about 20 feet with the other dangling line. At this point you are ready to tie in the second food bag. Once this is tied in take the excess chord and stuff it in the sack. If you leave this excess dangling it can get snagged when you do the next step or more importantly, it will give a bear the vantage of snagging your hung food. With all the excess chord tucked away, begin jiggling the second bag up, simultaneously lowering the first bag, until you can no longer reach the second one. To make the system nearly perfect reach up with your hooking stick and tug the first bag down until both are 10 feet off the ground and 10 from the tree trunk. To retrieve your stuff sacks use your hooking stick and reverse this process.

THE STOVE

Always use a camp stove for cooking. Open fire cooking is difficult and time-consuming and has a major impact on the area. Wood is cut and consumed, rocks are moved to make a fire pit; you will leave a fire scar; anyone nearby will smell your wood smoke, and you increase your chances of starting a forest fire.

Check out and test all cooking equipment before the trip. Make sure you are familiar with the stove and that the stove is in good working condition. Make sure to bring repair items with you, and to bring all relevant accessories like pot lids, utensils, etc. Check the amount of fuel you are bringing—is it enough? Too much? A generous rule of thumb for estimating fuel usage is 4 oz. per person per night on the trail. Another rule of thumb is 1 oz. of fuel to boil a quart of water. Actual gas usage will vary according to temperature, what you are cooking, elevation, and your experience level. Consider the safety advantages of using solid fuel, alcohol (about half as fast, but non-explosive), or sealed cartridges. Organize your food by meal, plus a miscellaneous bag for items used during every meal.

Stoves can be dangerous. Place the stove on solid, stable ground. Anyone using the stove must be well trained in its operation. In addition, place it in a spot where only the cooks can get to it. Avoid having the group crowd around the stove. Someone can easily get burned, the meal can get knocked over, or bits of the earth can find their way into the meal. To avoid accidents, do the same thing

any decent restaurant does: don't serve meals in the kitchen! Move the pot of food away from the stove into a "dining area" before serving food. This will prevent people from hovering by the stove. If the campsite is set up according to the 3-room model—tent area, kitchen area, and gathering/dining area—safety is maximized. Additionally, keeping the campsite split into three distinct areas keeps all food (and even the smell of food) away from the tent area so animals are not attracted.

Lastly, here are a few more guidelines to keep in mind concerning kitchen and stove safety:

- Before stoves are lit, make sure that they have sufficient fuel and are dry. Many pressurized stoves work better when they are $\frac{3}{4}$ full.
- All cooks and helpers should wash their hands before cooking.
- All food, utensils, and supplies should be organized and ready to be used. Sterilize utensils before the cooking begins.
- Place the stove on solid, stable ground. Place the water-filled pot on the stove before you light the stove to check if the water is level.
- Put a stove with boiling pot of water in a low spot. If it tips over, the hot water will pool up instead of flowing downhill to scald someone.
- Remember that clothing, tents, packs, sleeping bags, and pads are made of petroleum; these fabrics will burn quickly and melt onto your skin.
- Keep the number of cooks in the kitchen to a minimum!

Stove flare-ups are common and dangerous—they can be avoided by:

- Fill stoves in open, well-ventilated areas away from the cooking area or where people are gathering.
- Never open or fill a stove in a tent
- Never fill a hot stove: be sure that it has cooled completely
- Never open a stove near an open flame. The resulting vapor stream could ignite.
- Do not overfill a stove. This could result in leakage, over-pressurization and flare-up. Most stoves have a clearly marked fill line.

STOVES and COLD WEATHER:

Stove fuel can cause frostbite instantaneously. It will remain liquid even if the fuel is much colder than freezing, so it will chill your flesh much faster than water ever could. Cooking in the tent or vestibule is extremely dangerous: the stove produces colorless, odorless, and deadly carbon monoxide gas. When cooking on a snow base, heat from the stove will melt the stove into the snow and will eventually topple the stove. This problem can be minimized by using a non-flammable stove base such as a piece of sheet metal on an insulating surface like wood, or a piece of foam pad. Also be sure that the stove you are using is made for winter or cold-weather use; three-season stoves are not adequate in the winter.

Water Treatment

Pure as a mountain stream is a phrase that sounds good in advertising copy, but beware of what you are buying. Wilderness water can be just as unsafe for drinking as that found in urban waterways. Human fecal bacteria are found in increasing concentrations in streams, rivers and lakes in wilderness recreation areas. Giardia, a nasty intestinal parasitic protozoon, exists in both human and animal populations and can be spread by either. Since you cannot test your wilderness water supplies, you must assume the worst and treat your water to make it safe.

There are four ways to ensure safe water on the trail:

- Take it from home or a known safe supply
- Chemically treat the water, usually with iodine
- Filter the water
- Boil the water

Day hikers can carry what they need, but multi-day trips usually require re-supply in the field. Use common sense when you look for water and don't drink downstream from obvious pollution sources. Choose a source which does not drain a heavily used area such as a hut or shelter. Look for clear, silt-free water from a free-flowing source, or better yet from a spring. Beavers are a common source for introducing giardia into water sources, especially ponds. Animals who drink from giardia-infested ponds also deposit their feces along streambeds, thereby contaminating these sources as well. The moral of the story is—don't put yourself or the group at risk. Always treat your water supply. If you use a water bottle or pot to collect untreated water, it cannot be used for clean water until it is purified. Boiling water in the collecting pot will decontaminate it and iodine or bleach will decontaminate the water bottle.

Chemical treatment of water can be done with iodine tablets, iodine solutions, or sodium hypochlorite solution. Iodine tablets are simple to use; drop the tablets in the water and follow the directions on the bottle. You should realize that the iodine tablets have a limited life once opened and should be discarded after they begin to turn green. Make sure you have a fresh supply. Iodine solutions use trapped iodine crystals to make a solution that is then added to the water. There is no limit on the life of this method; as long as iodine crystals remain in the bottle, the material is still usable. All of these methods require a certain amount of time to purify the water. This contact time is affected by the temperature and turbidity of the water. Water that is cold and cloudy or silt-laden will take longer to treat. An average of 15-20 minutes in treatment will usually suffice. Chemical methods impart a flavor to the water that can be covered up by adding flavoring after the allotted contact time is up. Long-term use of chemical treatment should be avoided. Remember to loosen your water bottle cap and shake the water so that the chemical can disinfect the contamination around the

screw threads too. **Check with your participants whether any are allergic or sensitive to iodine.**

Several water filters are now marketed for hiker/backpacker use. Each consists of a micro porous filter and a pump. Water is pumped from the source through a filter that removes bacteria, parasites and small particles, and is then pumped into a clean container. Few filters are small enough to remove viruses. Viruses often attach themselves to bacteria and other particles. Thus, viruses are filtered out with bacteria and other particles. There are differences in the ease of handling, ease of maintenance, minimum size of filtered particles, rate of filtering, and filtering capacities among the various models -- shop around before you buy. Once you have your filter, read the instructions and know how to use and maintain it. And make sure others in your group understand its operation before they use it to get water. Filtered water is ready to drink immediately; it's chemical free, and it's tasty. Filters can clog in silty water so bring along a cleaning brush and tablets as an emergency backup.

Boiling water may be your only option in cold weather, and it works fine in warm weather. Filters freeze and chemicals take a long time to work if the water is cold enough. Boiling water is time consuming and fuel intensive, but it is chemical free. Bring the water to a rolling boil. If you are using this water for dinner, don't add any ingredients until a few minutes have passed. If this is your drinking water, let it cool and it will taste fine.

Use one of the above methods to prepare water for your clean-up. It doesn't make any sense to wash your dishes with contaminated water! Clean your dishes away from the water source. If you use soap, choose a biodegradable non-detergent cleaner such as Dr. Bronner's and make sure your dishes are rinsed well. Cold water does not do a good job of rinsing off soap. Scald your dishes in boiling water to remove soap and kill bacteria. Water treated with laundry bleach can adequately sterilize dishes.

Strain all *grey water* as described above into a latrine pit or sump hole. Grey water is water that has been used for cooking and cleaning.

Weather

Weather is an important factor in any outdoor activity. Being aware of the weather forecast and preparing your group for it will help make your trip more enjoyable and safe. Before going on a trip, listen to the local television or radio forecasts. You can find excellent forecasts for your destination using the internet. The Mt. Washington Observatory's forecast for the White Mountains is available by calling the AMC at Pinkham Notch (603-466-2725). Remember, in case the weather is inclement or threatening, make sure the participants know how to find out if you have canceled or not.

As we all know, forecasts are not entirely accurate, especially in the mountains. You and your group must always be prepared for the worst possible conditions that may occur at a given time of year. You can stay one step ahead of the weather by paying attention to what is going on around you and applying some basic principles of meteorology. You can easily master these basic principles, but, like all rules, they are not always accurate. The more you know about the weather, the better off you will be and the more fun you are likely to have.

Rule #1: Mountains Often Cause Their Own Weather

When wind hits a mountainside, it meets a barrier. The mountain funnels the wind into valleys or forces it over the mountain or ridge top. If the wind goes over the mountain, its speed increases; the air cools, and moisture may begin to condense. This brings us to rule #2.

Rule #2: The Higher You Go, The Cooler and Damper It Gets! (Usually)

The adiabatic lapse rate states that for every 1,000 foot elevation gain air will cool by 3 to 5 degrees Fahrenheit. The exact lapse rate depends on many things. As you climb, prepare for cooler temperatures. As air cools, it can hold less water vapor. It will feel damper and you may climb into a cloud.

Rule #1 showed that when wind hits a mountainside, the mountain forces it up and over. As the air goes up, it cools off and moisture in it may condense, forming a fog or a cloud, or increasing the size of existing clouds. As the moist, hot air cools, it condenses and forms water droplets on cooler surfaces. If the mountains cause the air to cool enough and if the air contains enough moisture, it will condense, causing rain or snow if the right conditions exist. Because of the exposure to high winds, cooler temperatures and lightning, move your group off peaks and ridges at the sight of bad weather.

One exception to Rule #2 sometimes occurs; it's called a temperature inversion. An inversion usually happens on a clear, still night because cool air sinks down into valleys. During a temperature inversion, if you stay higher on a mountain, you can experience temperatures up to 20 degrees Fahrenheit warmer than in the valley.

Rule #3: A Falling Barometer Can Spell Trouble

A change in barometric pressure over several hours usually indicates a change in the weather. Of course, knowing this isn't going to do you much good in the field unless you bring your own barometer (a somewhat unreasonable idea). More practical for our purposes is the pocket or wristwatch altimeter. An altimeter can help you figure out your location and tell you about the trend in barometric pressure. Generally high, steady barometric pressure indicates good weather. Falling barometric pressure indicates that bad weather is coming, and rising barometric pressure indicates improving conditions. Good altimeters are somewhat expensive, however they can prove highly valuable and fun to learn and use.

Rule #4: Fronts Bring Bad Weather

A front is the dividing line between two air masses, one of which pushes the other out of its way. Fronts are often associated with bad weather and high winds. When a cold front moves in, cold air forces out warmer air. Similarly, when a warm front moves in, warm air forces out cold air. Cold fronts move relatively quickly - up to 35 mph- and often cause rapid and dramatic storms. They may not last as long as the warm front, but they pack a real punch in many cases. Thunder and lightning are not uncommon and those towering thunderheads (cumulonimbus clouds) are most often associated with the cold front. Warm fronts, on the other hand, tend to last longer and are not usually as dramatic. They lead to long drizzly or rainy days). Warm fronts give more advanced warning, by high, thin clouds, than cold fronts and take longer to clear out.

Rule #5: Forecasting Means Noticing Weather Changes Throughout the Day

To stay one step ahead of the weather, keep an eye on the clouds and what they are doing. Are those fluffy cumulus clouds you saw in the morning getting larger, growing significantly by 1 or 2 PM? If so, they may well produce showers. Are the thin wispy cirrus clouds that seemed so high earlier, bunching together and thickening? Is the cloud ceiling lowering during the day? If the answer is yes to any of these questions, something is up and it is probably not going to lead to lots of sunshine.

Let's take it one step further: consider the direction or change in the direction of the wind. The weather in the Northeast is mainly continental; the predominant wind direction is westerly (from the West). Westerly winds generally give us fine weather, though plenty of storms come on this wind, too. A southerly wind could spell trouble: warm moist air may be moving north. A northerly wind, or a change to a northeasterly wind, indicates that bad weather is a strong possibility. The northeast is famous for its Nor'easters (low pressure storms centered just off the coast which deposit large amounts of snow or rain). In 1968 a series of these storms left the winter snowfall on Mt. Washington at over 47 feet for the season.

To make this part of forecasting simpler, a cloud identification and wind direction chart has been devised. This handy tool is easy to understand. One can be purchased at numerous places including the Appalachian Mountain Club in Boston or at Pinkham Notch.

Summary

Northeast weather can change dramatically in a relatively short time. Because of this, you must always **be prepared!** Ample warm clothing, rain gear and wind protection are a must any time of the year. Good wind protection will save you from the cooling effects of wind chill.

To maximize your forecasting abilities, you must be aware of the ever-changing environment around you. Continual awareness of the sometimes-subtle changes in cloud formations and wind direction will give you the edge you need. If the weather starts changing, let the group members know so they can be ready to put on their rain or wind gear, or understand the need to turn back early if that is the only safe way to go.

Proficiency in weather forecasting comes with practice. Get a cloud and wind chart, use your compass to determine wind direction changes, and keep your eye on the elements. Besides being practical, you can have fun learning this ancient skill and get a good deal of satisfaction from it.

Here are some facts about the White Mountains to supplement the things you've already learned:

- The White Mountains are cloudy over half of the days of the year.
- Mt. Washington holds the record for the highest wind speed record ever recorded at a weather station, 231 mph in 1934.
- Pinkham Notch averages 168 inches or snowfall annually (14 feet). The summit averages 247 inches annually (20 feet, 7 inches).
- During the month of January the sun sets around 4:16 PM after approximately 9 hours of daylight.
- According to Mark Twain, "One of the brightest gems of New England weather is the dazzling uncertainty of it."
- The ridges and summits of the White Mountains are in the clouds $\frac{3}{4}$ of the winter days.
- Cold fronts can produce 100 mile per hour winds and temperature drops of 20 degrees in half an hour.
- Hurricane force winds (greater than 75 miles per hour) occur on half of all winter days atop Mt. Washington. Few people can stand upright and walk in a 75mph wind. You will, at best, crawl.
- Beautiful and dramatic weather can give you wonderful memories to last a lifetime. Enjoy yourself.

Lightning

Guidelines:

Prior Planning

- ◆ **Examine Route** – Determine if there are areas of high risk (see the next section). Plan for bail out points if there are parts of the route that will be exposed to higher than normal lightning danger.
- ◆ **Weather Report** – Obtain one if possible and consider modifying your plan if the forecast calls for t-storms.
- ◆ **Daily Pattern** – Certain mountainous areas have very regular patterns of summer T-storms. Know the pattern and plan accordingly to be in a safer area at the time of the likely storms. Lightning related to frontal systems is less predictable.

Location During a Lightning Storm

- ◆ **Avoid** – Peaks, ridges and other high points, open bodies of water, shallow caves and the drainage bottoms (wet or dry).
- ◆ **Other Potentially Dangerous Areas** – Wet or lichen covered rock, cracks or crevices in rock, wet ropes and tree roots can all serve as conductors.
- ◆ **Head For** – Wooded areas with trees of generally equal height. Position yourself equidistant between trees of approximately equal height. Avoid the tallest trees. Valleys (but not drainage bottoms) and low on slopes are better than most locations higher up. If you are out on the water, head for shore.
- ◆ **If Caught in the Open** – Utilize likely strike points as a means of protection. Locate a tree, pinnacle or other point that is 5 or more times your height. Estimate the height of the object and position yourself approximately 50% of that distance from the base of the object. Avoid being the highest point in your vicinity.

As a Storm Approaches

- ◆ **Monitor** – Keep a diligent eye on the approach of weather systems. Learn to identify the cumulonimbus clouds that are likely to produce lightning discharges.
- ◆ **Flash to Crash** – When you see lightning begin counting off the seconds until you hear thunder. The light reaches you almost immediately; however the sound travels more slowly. The sound of thunder takes approximately 5 seconds to travel 1 mile – dividing your second count by 5 gives the approximate distance of the storm in miles.
- ◆ **Head to Safer Areas** – Generally it is advisable to head for safer areas if you feel that a thunderstorm may be approaching. If your route takes you into an exposed area, this is likely the time to alter your plan.

“Lightning Drill”

- ◆ **Two to Three Miles Away** – At this distance (based on your second count) a group should enter into a “lightning drill.” Three miles (15 seconds) is the standard for US Outward Bound Schools.
- ◆ **Ideal “Drill”** – This consists of squatting on insulating material (if available), heels touching, knees apart and hands off the ground. You should be in this position when the storm is at its closest. The insulating material might be a sleeping pad, a pack or a coiled climbing rope.
- ◆ **Sitting** – The duration of the storm may make it difficult to squat the whole time, thus individuals may choose to sit when the storm is not immediately on top of them.
- ◆ **Spread Out** – Groups should spread out to reduce the likelihood of more than one person being affected by a strike. Everyone should be within audio or visual contact of other group members.
- ◆ **Location, Location** – Lightning drills should be conducted in safer areas of terrain, as outlined above. When caught in a highly exposed area, it is usually advisable to continue travel to a safer area, if one is nearby, rather than enter into a lightning drill. Think! If you are on a peak or a ridge, get down off of it before doing the drill.
- ◆ **Hypothermia** – This is a real concern during lightning drills. Make sure everyone has raingear and, if necessary, insulating layers. Snacks and water should be available.
- ◆ **Falling Objects** – Be aware of dead trees or branches close to your location that might get blown down.
- ◆ **Holding Tight** – If the group is in a tent or under a tarp in an ideal location, it may be advisable to remain dry and sheltered.
- ◆ **Metal** – Avoid any contact with metal, which can cause serious burns if it is exposed to current.

First Aid

- ◆ **Pulse & Breathing** – If a patient has no pulse provide CPR (chest compressions and rescue breathing). For the patient with a pulse who is not breathing, provide rescue breathing. Spontaneous resuscitation via CPR is more likely after a lightning strike than with other causes of loss of circulation or respiration. Wilderness protocols instruct to continue CPR for as long as is feasible for the rescuers.
- ◆ **Burns & Trauma** – Both are common in lightning victims. Evaluate and treat accordingly.
- ◆ **Evacuate** – Carefully decide on a safe and expedient evacuation plan.

Behind the Guidelines

Lightning is a real hazard for the outdoor enthusiast. The highest concentrations of lightning injuries occur high in mountainous areas and on large bodies of water. A majority of the 200-300 lightning fatalities in the US each year are people who were engaged in recreational activities – golf more than anything

else. On the positive side, most of those affected by lightning are not killed, and many are not seriously injured.

Knowledge of lightning and prudent decision making eliminate much of the risk of lightning. It is useful to plan for possible lightning in advance and to practice re-analyzing your situation once out in the field. The differential between the speed of light and the slower speed of sound make it possible to learn the approximate distance of any given storm. Use the distance of the storm and observations on its movement to create a plan of action.

The highest object in a given area is the most likely to be struck by lightning, thus many of the guidelines above are an attempt to keep people from being that high point. The lightning drill is important in that the insulating material may help protect a person in the event of lightning splash or ground transfer. The squatting position allows current to flow through the lower body without running through the heart. Many lightning strikes have affected more than one person, thus it is critically important to spread out to avoid this situation.

It is important to remember that most lightning victims are not exposed to a direct strike. A person can come into contact with lightning four different ways:

1. Direct Hit
2. Ground Transfer – Electrical energy, dissipating outward from the object it hits, flows through the ground and potentially those nearby.
3. “Splash” – Bolt hits another object and splashes onto objects/people nearby.
4. Direct Transmission – Lightning hits an object the person is in contact with and current is transferred.

Those who do not suffer the effects of a direct strike are far more likely to recover.

Lightning knocks many victims into unconsciousness or may otherwise affect their level of consciousness. Victims may also suffer paralysis of extremities, ruptured eardrums, and, of course, burns. Treat these conditions as outlined above, but keep in mind that the electrical current which caused the heart to stop or breathing to stop may not have permanently damaged the organs. Unless it is dangerous or you are completely exhausted, do not stop CPR or rescue breathing on a lightning victim

A commonly repeated story from the North Carolina Outward Bound School illustrates the benefits of rescue breathing and being prepared. This particular course was caught on a ridge in a storm and both instructors were knocked unconscious by ground transfer lightning. Luckily the instructors, who were not breathing, had just taught their students rescue breathing and CPR (as is required on US Outward Bound courses). The students performed rescue breathing on their instructors and both spontaneously began breathing within a short period of time.

Lost and Alone

The scenario of a group member becoming lost or disoriented on a program is possible. There are times when leaders do not have visual contact with every group member; there may be situations in which separating your group is deemed appropriate or necessary. The following are procedures and guidelines that can be implemented should a group member be discovered as missing.

Prevention

At the beginning of the program, leaders should brief participants on the importance of staying together as a group and what to do if they become separated including:

- S.T.O.P.: Stop, Think, Observe and Plan. If you can't find any recognizable landmark, stay put.
- Stay warm and protect yourself from the elements using the equipment you brought. Try to remain hydrated.
- Wear or show bright clothing to attract attention.
- If possible blow a whistle 3 times or shout help at regular intervals. Remember three of anything (noises, flashes, etc.) is the international distress signal.

Considerations when leading youth

If leading groups involving minors as participants, leaders must make the decision on whether or not to utilize minors in the group to assist in a search for a missing participant. Leaders are encouraged to make conservative decisions about the inclusion of minor participants in the search teams, keeping their safety as the top priority. Instructors may find that 16-18 years olds are competent to perform a wider, more comprehensive secondary search while 12-15 years olds are only competent to perform a hasty search of the immediate focus area.

Conducting a Search

- **Gather Information** – important aspects include when and where the group member was last seen, what direction he/she was heading, what clothing and/or equipment he/she has.
- **Quick Check of Point Last Seen** – if near the location of the point where the group member was last seen, make a quick check of the area and shout the person's name.
- **Hasty Search** – If shouting does not bring a response, group members in pairs should perform an organized hasty search by quickly sweeping the area, nearby trails, lookout points, nearby streams or lakes, or any other obvious places the person might be. Make a plan for areas to be covered and search for no more than 20-30 minutes. Look and listen carefully for signs of the missing and responses to the groups' calls.
- **Secondary Search** – If the hasty search does not bring results, a more systematic secondary search could be initiated. Take the time to plan and determine a general search area based on the elapsed time the

person was last seen assuming an average walking speed. All searchers should be equipped with flashlights and always be within sight of the next searcher. Each search team should be properly equipped and have the experience to prevent them from getting lost.

- **Get Help** – If the secondary search does not bring results quickly (within 1 hour), or the search area is too large for the group to cover, seek outside help for a more extensive search . Utilize any communication devices and remember where your closest resource might be (Hut, Shelter, etc.) when needing help. The timeline of when to go for help will be affected by several important factors dictating a more rapid response for outside assistance. These include age of the missing participant, current or forecasted weather conditions, multiple missing participants, or other extenuating circumstances.

Considerations of the Group

- Upon the discovery of a missing group member, gather and account for all other members of the group. Finding the missing is equally as important as keeping the rest of the group together.
- Instill an atmosphere of calm by providing an assessment of the situation and next steps including their involvement.
- Consider their physical and emotional ability to help with what will be asked of them.
- Establish constant check-ins with the group to ensure understanding, provide updates, gather information, and prevent stress and fatigue.

First Aid and Accident Scene Management

This handbook cannot cover all aspects of first aid and accident management. Anyone venturing away from the 911 safety net, especially someone leading a trip, should pursue training in wilderness first aid. The benefits of learning a systematic response to emergency situations are too numerous to list. A systematic approach and role-playing scenarios are emphasized in all of the nationally available wilderness first aid trainings.

Wilderness First Aid (WFA) is the most basic level of training, and is generally taught as a two-day hands on course. Wilderness First Responder (WFR), an eight to ten day course is generally accepted as the minimum training for professional outdoor leaders. Other trainings available include Wilderness Advanced First Aid, a four-day course, and Wilderness Emergency Medical Technician (WEMT), the most rigorous training. These courses are far superior to standard first aid courses for dealing with emergencies in backcountry and some rural situations. This type of wilderness training can also be very useful for those venturing to nations with less developed emergency medical care systems.

If interested in increasing your wilderness medical training, you can also contact the AMC for information on trainings in your area, or with SOLO (www.soloschools.com) for trainings throughout the country. The remainder of this section contains some basic principles of emergency response and suggestions for the first aid kit a backcountry traveler should carry.

Principles of Wilderness First Aid Kits

Every individual engaged in an outdoor activity group should carry an individual first aid kit and one person in every group, usually the leader, should carry a group first aid kit.

- Your first aid kit should not contain items you don't know how to use.
- Your first aid kit should contain items that either serve multiple uses or can't be improvised.
- There is no perfect first aid kit – they are ALWAYS a compromise in space, weight, usefulness, and cost.
- Don't be afraid to carry a first aid booklet – even if you are well trained, no one's memory is perfect.
- Carry a pen or pencil and a first aid report form or blank paper. Write down as much information as possible while you are administering care to a patient.
- Be Prepared to improvise what you don't have available in your kit.
- Items can change seasonally, with the location and duration of trip – for example, you won't need a snakebite kit for ski trips.

- Your first aid kit should be crush proof and water proof and be able to stand abuse – start with a heavy duty nylon fanny pack and pack items inside it in freezer-type zip-lock plastic bags.
- Most items will remain usable over long periods of time, but you should check expiration dates periodically.
- If you carry medications, make sure they are labeled.
- A useful first aid kit can take a long time to develop. Add things you wish you had the last time you needed the kit and remove things you have never used
- Commercial kits are expensive, and sometimes have things you won't need or can't use. They might be a good compromise if you don't know where to start.
- First aid kits don't save lives. It's the skill and training of the user that will make the difference.
- Keep a checklist of items in your kit, review the contents and refill immediately after each trip.

The Ten Commandments of Wilderness First Aid Emergency Management

- I. Thou shalt not become a victim
- II. Your safety and the safety of your group come first.
- III. Thou shalt remain calm and use thy brain.
- IV. Thou shalt use what thou hast and improvise what thou hast not.
- V. Thou shalt always remember the ABC's (if you don't know your ABC's, see Commandment IX).
- VI. Thou shalt not leave thy patient alone.
- VII. Thou shalt write it down for if it wasn't written it wasn't done.
- VIII. Thou shalt not take it all on thine own head but delegate it out for thou art not alone.
- IX. Thou shalt get trained and stay current.
- X. Thou shalt plan ahead, keep thine eyes open and sweat the details for an ounce of prevention is worth a pound of cure.

Prevention, Self-reliance and Accident Scene Management

First and foremost—**You** are responsible for your participants! When an accident occurs, remember that you are responsible both for the victim and the rest of the group. Make sure that you and at least one other individual (preferably a co-leader) are *actively* administering to both the needs of the victim and the needs of the group. The group members should make sure that they stay well fed, hydrated, and warm while the victim is being cared for. Also make sure that you or another is *actively* documenting the incident—use a SOAP note and keep track of as much information as possible. And remember—there are several ways that accidents can be prevented right from the start. As a leader, it is your responsibility to take all of these into consideration.

PREVENTION

Plan your outing carefully

- If you have not been in the area, educate yourself
- Gather useful information up to the last minute, such as a weather report
- Make sure your trip description fits with the outing you actually undertake
- Inform participants of expected difficulties
- Set realistic objectives

Be personally prepared

- Have the appropriate skills/fitness level for the outing
- Activities you lead should be well within your level of comfort

On the trail

- Use conservative judgment and common sense
- Be aware of major threats and preventive measures
 - Hypothermia or Hyperthermia
 - Drowning
 - Lightning
 - Falls
 - Stream crossings or road crossings
 - Pre-existing medical conditions
- Keep people within your group in contact
 - No solo travelers
- Know where you are
- Be willing to cancel the trip or alter the objective
 - Any objective is secondary to safety and having fun
- Watch people for signs of problems before they become serious

SELF-RELIANCE

Plan for an emergency

- Know points of emergency contact
- Carry emergency phone numbers
- Know medical concerns in your group
- Carry appropriate equipment
 - Clothing
 - Shelter
 - First Aid Supplies
- Consider an appropriate level of First aid training

Utilize the resources in your group effectively

- Know who has skills and training that may be useful, especially medical training
- Be aware of the equipment and supplies carried in your group

THE ACCIDENT SCENE

Scene safety

- First priority is the safety of yourself and other potential rescuers
 - Avoid adding victims
 - Make sure others in the group are organized and in a safe place

Treat your patient (if it is a medical situation)

- Delegate someone to provide medical care (the best person may not be you!)
- Consider moving the patient if they are in a dangerous location

Delegate tasks to people

- Step back and analyze what is needed
- Do not leave people idling around
- Communicating with the patient/victim
 - Consider the psychological needs of the patient
- Recording care given to patient
- Assembling available equipment that may be needed
 - This may include 1st aid supplies, shelter, etc
- Evaluating routes of evacuation or obtaining assistance
 - Delegate 2 competent individuals if possible

Evaluate the Scene

- Continue to make sure the delegated tasks are being carried out

EVACUATION

Consideration

- Does patient need to be evacuated?

Options for Evacuation

- Walk out
- Carried out by group
- Carried out by rescue group
- Evacuated by vehicle

Sending a messenger

- Note describing situation and location and your intentions
- Map marked with location of patient and remainder of group
- List of resources requested

Communications technology

- Cell Phones can change much of this
- Do not count on technology to assist you—consider them an aid only
 - Batteries run down
 - Phones break
- Coverage is not complete
- Little use if you don't know where you are

LEADERSHIP

The leader must control the scene—the scene must not control the leader

- Empathize
 - Understand the feelings of others in your group
- Do not panic
 - Step back and try to objectively observe
 - Show confidence and do not over react
- Be open to suggestions
 - This must be balanced with getting tasks done quickly
- Commend participants for their efforts
 - Keep your group informed of the progress of efforts

FOLLOW-UP

Debrief serious incidents

Consider professional assistance with this. The AMC can help.

Hypothermia and Hyperthermia

HYPOTHERMIA

Hypothermia is the number one cause of accidents and deaths in the backcountry. Hypothermia is the lowering of one's internal body temperature. We are warm-blooded animals and we require a constant body temperature to insure our survival. Doing this in our day-to-day life is usually pretty easy: if we are cold, we turn up the heat; if we get wet, we go to the closet and change our clothes. These luxuries do not exist in the backcountry. The lowering of normal body temperature from 98.6 degrees to 97 or 96 degrees can make a backpacker confused or disoriented; further lowering of body temperature to 95 or 94 degrees can be fatal. Initial identification and prompt action are the keys to preventing hypothermia from taking another victim. Remember, hypothermia occurs in all four seasons; it is 100% preventable and 100% treatable if recognized in time. Prevention of hypothermia involves preventing heat loss, encouraging heat production and detecting the emerging problem early.

Preventing heat loss can be done in a variety of ways

- Controlling convection - wear wind and rain gear to prevent wind currents from transporting the heat away from you
- Controlling evaporation - sweating leads to a wet body and a wet body is a cold body. It is important to maintain a warm, dry body by not over-sweating. To control evaporation reduce the amount of insulation or ventilate your insulation and/or wind and rain barrier
- Controlling radiation - prevent your body from radiating its heat to the surrounding air. Insulate the total body, especially the head, with the proper fibers. We lose a large quantity of heat from our head
- Controlling conduction - eliminate the transfer of your body heat to heat sucking objects around you. Avoid sitting or sleeping on cold, wet ground unless you are on an insulating pad.

Heat production can be encouraged in the following ways

- Eat a mix of foods high in calories
- Drink warm beverages high in calories
- Keep moving if possible
- Change into dry clothing

Symptoms of hypothermia are not always apparent, even to the most experienced backpacker. Symptoms such as irritability, lack of concentration and clumsiness are inherent in all hikers, particularly late in the day. At this point, hypothermia can be treated with a handful of GORP, some warm, high-calorie fluids and an extra layer of clothing. Symptoms of moderate to severe hypothermia come quickly, sometimes in less than 30 minutes, and will include uncontrollable shivering, slurred speech, and loss of fine motor coordination eventually advancing to physical collapse, unresponsiveness, cessation of

shivering, unconsciousness and decreased pulse and respiration. At this point treatment requires stopping the group and managing the victim.

First Aid for hypothermia means preventing hypothermia. If you and your group are dry, well hydrated, well fed, and physically active, you will not need to provide First Aid. However, hypothermia is insidious and is often referred to as the silent killer.

First Aid would include the following

- Eat a mix of foods high in calories
- Drink warm beverages high in calories
- Change into dry clothing
- Keep moving if possible

Physical activity involved in continued hiking will often generate enough heat to rewarm mild to moderate hypothermia. However, to engage in physical activity requires calories and hydration. Don't expect a hungry and dehydrated hiker to be willing to keep moving. Generally hypothermic victims oppose this suggestion, wanting to sit and rest a while. Resist this temptation and move the group forward. Even if the group is wet, at least they will be warm. Anyone who spends time in the backcountry will, at some point, personally experience hypothermia. Every backcountry leader needs to become familiar with its symptoms and basic treatments. Remember: well-fed, well-hydrated, well-dressed groups will not fall prey to hypothermia.

HYPERTHERMIA

Hyperthermia is the opposite of hypothermia. Next to oxygen, water is most important in sustaining life. We are approximately 30% fluid by weight. A loss of a small percent of body fluids, such as 2% to 3%, will decrease the working effectiveness of our musculo-skeletal system by 20% to 30%. The average backpacker needs to consume approximately four quarts of fluid each day for optimal performance. Four quarts is a minimum; some backpackers may require as much as eight. The suggested consumption regime is one quart with breakfast, two quarts during the day and one to two quarts in the evening. In the summer, the hot temperatures encourage us to drink and the risks of dehydration are much more apparent to us. However, dehydration is an equally serious problem during the cold winter months. Dehydration, along with the intense heat of the summer sun, leads to hyperthermia. Staying hydrated helps hikers maintain their regular body temperature during the physical exertion of a backpacking trip. A well-hydrated hiker also generates lucid thought, an important criteria for decision-making in the backcountry. We have all experienced the hyperthermic condition when we got the flu and our temperature went up. Can you imagine trying to hike while you have a fever? Basically, this is what happens to individuals who become dehydrated.

Three conditions, working in conjunction with dehydration, that lead to hyperthermia are:

- Heat Exposure - Internally from strenuous exercise and externally from air temperature
- Heat Loss ability - Perspiration and increased blood flow to the skin
- Environmental Conditions - Air temperatures greater than 90 degrees drastically reduces the body's ability to shed heat through radiation. Normally, 65% of heat loss occurs through radiation. Relative humidity above 75% drastically reduces the body's ability to release heat through perspiration. Normally 20% of heat loss occurs due to sweating.

Prevention

- Drinking water - The best prevention for dehydration is constantly drinking water throughout the day. Water is the recommended source of fluid. It is the easiest for the body to absorb.
- Rest - A short rest is advisable so that the body can absorb the water
- Shade - If shade is available, use it. This includes sun visors.

If preventive measures are not taken, then more serious problems can result. These can lead to death if not cared for immediately.

Advanced Dehydration/Heat Exhaustion –

Excessive sweating is an early sign of dehydration. More advanced dehydration is often called heat exhaustion.

Symptoms

- Weak, thirsty, headache, nausea, vomiting, cramps, disorientation
- Excessive sweating
- Reddening of skin on face and extremities
- Skin is cool and clammy to the touch

First Aid

- Water - Start with small amounts, a mouthful at a time, and working up to larger amounts over a period of several hours. This is to prevent vomiting which often happens when a severely dehydrated individual takes large amounts of fluid in a short time
- Rest - A long rest is advisable; you will probably not cover much ground with an advanced dehydration condition
- Shade - If shade is available, use it; if not, construct some shade using a tent fly or other available material
- Radiation - The body cannot tolerate high temperatures for a long period of time; rapid cooling off of the severely dehydrated individual must be accomplished quickly. Often these victims are unconscious and are unable to take fluids orally. These victims should have water poured on their bodies or be placed in a stream if available. This will rapidly decrease the victim's body temperature. Once they are conscious, begin treating with

small amounts of fluid. Be cautious not to bring the persons temperature to a hypothermic stage by over cooling.

Today many electrolyte replacement fluids are available. But before using these products on hikes, try them in a more controlled environment such as during a workout in the gym or a run in your neighborhood. Don't assume these products will decrease the amount of fluid you will need.

Severe Dehydration/Heat Stroke –

A life threatening situation that appears in two forms: Classic heat stroke (perspiration ceases due to dehydration) OR exertional heat stroke (air is too hot and humid for hiker's heat loss mechanisms to work effectively).

Symptoms

- Rapid pulse and ventilations, confusion, seizures
- Sweating profusely – exertional
- Reddening of skin on face and extremities
- Skin is hot and dry to the touch – classical
- Rapid loss of consciousness

First Aid

Same treatment as for Advanced Dehydration/Heat Exhaustion (see above)

SOAP NOTE

Subjective: (age, sex, mechanism of injury (MOI), chief complaint (CC))

Objective: (vital signs (VS), patient exam (PE), AMPLE history)

Time				
LOC				
RR				
HR				
SKIN				

Vital Signs:

Patient Exam (describe locations of pain, tenderness and injuries)

AMPLE

Allergies _____

Medications _____

Past pertinent medical history _____

Last oral intake _____

Events Leading up to accident _____

Assessment: (problem list)

Plan: (for each problem on the problem list)

MONITOR: how often do you plan to monitor the patient?

AMC Outdoor Leader Handbook Credits and Sources

The AMC Outdoor Leadership Handbook has been under development for many years – dating back at least into the early 1980s. Some early parts were mimeographed writings from instructors and leaders who helped create the school and manual that now exists. Over the years there have been hundreds of instructors at the school. They have all left a mark. We have tried to capture the names of early contributors to the manual but have probably missed some. They include Gerald Barnicle, Betty Bourret, D.N. Crouse, John Cunningham, Mark Fingerle, Laurie Geary, Doug Huntley, Bill Kielbasa, Chuck Kukla, Matt Kukla, Nathan Kukla, Rich Leonard, Sandra Nunes, Michelle Pahl, Tom Osborne, Terry O’Neill, Ed Poyer, Bob Ramsdell, Nancy Rich, Tom Rouse, Jeep Tarmey, Karen Tarmey, Mike Tarmey, Dave Thurlow, Lee Tibbert, John Tovrov, and Ginger Wallis. We owe a special debt to Lee Cunningham, Andy Cohen, and Tim Ranieri who were the editors of the last edition prior to this version of the manual.

1st Edition Editor – Mark Yerkes, November 1996; 2nd Edition Editor – Alex Kosseff, 2000; 3rd Edition Editor – Katherine Byers, March 2003; 4th Edition Editor – John Schmitz, December 2003; 5th Edition Editor – Aaron Gorban, April 2005; 6th and 7th—Jess Wilson

Introduction, Decision Making – John Denkowski, New York North Jersey Chapter Hiking Chair

Trip Planning and Management – Mark Yerkes, November 1996; Joe Kuzneski, OLDC Past Chair, April 2001; Katherine Byers, March 2003

Leave No Trace & Backcountry Ethics – Katie Kozin, Outdoor Leadership Intern, August 2002

- *Leave No Trace* section integrates materials from the Leave No Trace, Inc. website
- *What Does This Mean for AMC Leaders and Groups?* Section integrates materials from the Northeast Mountains LNT Skills & Ethics Booklet
- *Human Waste and Hygiene* – Alex Kosseff, October 1998; Katie Jones and Katherine Byers, August 2002

Participant Screening- Dexter Robinson, South Eastern Massachusetts Chapter, April 2005

Weather – AMC Boston Chapter Fall Leadership Training Committee

Lightning – Alex Kosseff, July 1998

First Aid and Accident Scene Management – Alex Kosseff, October 1998

Principles of Wilderness First Aid Kits, Commandments of Wilderness First Aid Emergency Management – Jonathan Silver, October 1998