Chapter 8

Climbing and Bouldering

For many participants in BSA climbing/rappelling activities, there is nothing quite so challenging and thrilling as tying in to a climbing rope and making their first ascent of a steep face. The power of that experience can affect them on many levels—increasing self-confidence, overcoming personal barriers and fears, gaining skill, and taking on new responsibilities. In addition, they will discover that climbing can be downright fun.

To maximize the climbing experience and minimize the risks inherent in the sport, instructors should thoroughly prepare participants before allowing them to go on the rock. That can include a short introduction to cover the basics of using climbing's verbal signals, of being belayed, and of employing a three-point stance. Instructors can also demonstrate basic holds for the hands and feet and discuss what participants should do during and after a possible fall.

A portion of the introductory segment at a climbing site must include a few minutes of stretching to allow participants to loosen up and prepare for the rigors of the activities ahead. Novices may be further encouraged to be aware of the ways in which their bodies move as they walk on flat surfaces. If the terrain allows it, instructors can have participants do the same on gentle inclines and then more steeply angled rock. That will also allow them to experience the gripping ability of shoe soles, the use of small nubs and edges for holding body weight, and the incorporation of the hands to form a three-point stance, the foundation of all climbing. (For more on guiding participants through a climbing experience, see chapter 11, "Conducting a Climbing/Rappelling Program.")

THE THREE-POINT STANCE IS A STABLE POSITION FOR THE CLIMBER. AT ALL TIMES, THE CLIMBER KEEPS GOOD HOLDS ON THE ROCK USING ONE HAND AND BOTH FEET OR TWO HANDS AND ONE FOOT.

Falling

Instructors working with a group new to climbing should explain how a belay works, mentioning that dynamic rope will stop falls gradually rather than all at once. Participants who are especially concerned about their safety might find their fears muted if instructors also show them the way that anchors are set and that there are backups in the unlikely event of an anchor failing.

Do not, however, lead participants to believe that they will not fall. Falling is part of learning to climb. The security of a proper belay will protect climbers from falling far. Clear communication with belayers will help ensure that when falls do occur, they will be relatively harmless.

FIG. 64. CLIMBER FALLING

Every climber falls occasionally. Climbers and rappellers who are top-rope belayed should not fall more than a couple of feet as the rope stretches.

Falling climbers should try to turn toward the wall and use their hands and feet to cushion any impact against the climbing face and to prevent themselves from spinning. They should avoid grabbing the rope; doing so will occupy their hands rather than leaving them free to absorb the force of bumping into the wall.

Once a fall has been arrested, the climber, before finding good holds for the hands and feet and resuming the climb, may want to take a few moments to collect his or her thoughts and reassure those on the ground that everything is all right. (For more on the correct verbal signals to use, see chapter 7, "Belaying and Belay Signals.")

In Case of Injury

Instructors who suspect that a fall may have resulted in injury to a climber must carefully assess the situation before taking action. If the climber can answer questions, instructors should learn what they can about the climber's condition. In most cases, that will provide assurance that it will be safe for the belayer simply to lower the person to the ground for further diagnosis and treatment. However, if the climber is nonresponsive or if instructors suspect that injuries are more than minor, it may be wise for an instructor to rappel down to the climber to conduct an up-close evaluation
and to be in position to assist in completing a rescue.

For more on evaluating injuries and carrying out rescues, see chapter 12, "Incident Resolution, First Aid, and Emergency Response."

Climbing Classification System

Climbing classification systems rate the difficulty of different climbs. Guidebooks for popular climbing areas use these scales to help people decide which routes match their skills. In the classification system most frequently used in the United States—the Yosemite Decimal System—there are usually five classes.

Class 1—Hiking. The hands are not needed for balance.

Class 2—Simple scrambling. The hands are occasionally used for balance. A rope is not needed.

Class 3—Scrambling. Climbers use their hands and some basic climbing skills. A rope may be used to belay anyone who is uncomfortable with the exposure.

Class 4—Simple climbing, often with exposure. Anchored belays are used, and natural protection can be found easily.

Class 5—Roped climbing with protection. All climbing involves using a rope, belaying, and protecting the leader from a fall. A belay is always required with climbers ascending higher than shoulder height.

Class 5 climbing is further divided into 15 categories of difficulty:

5.0-5.5: Novice and beginning climbers will enjoy these areas. They're a great place to start.

5.6-5.9: The climbs are more difficult. Specific climbing skills such as jamming, liebacks, and mantles are used.

5.10-5.15: Progressively more difficult climbing areas that demand physical training and climbing skills, as well as repeated experience climbing that area.

Aid climbing—roped climbing with artificial assistance—is sometimes considered a sixth class of climbing. Climbers on smooth, steep faces or overhangs place their weight on artificial aids such as climbing stirrups.

Bouldering

Bouldering is a fine way to learn climbing techniques. While its name comes from the practice of climbers working out moves on actual boulders, it can also be done on any face that presents usable handholds and footholds—the lower reaches of climbing towers, for example, or of stone buildings or artificial climbing walls. (Always obtain permission from owners or facilities managers before bouldering on structures.)

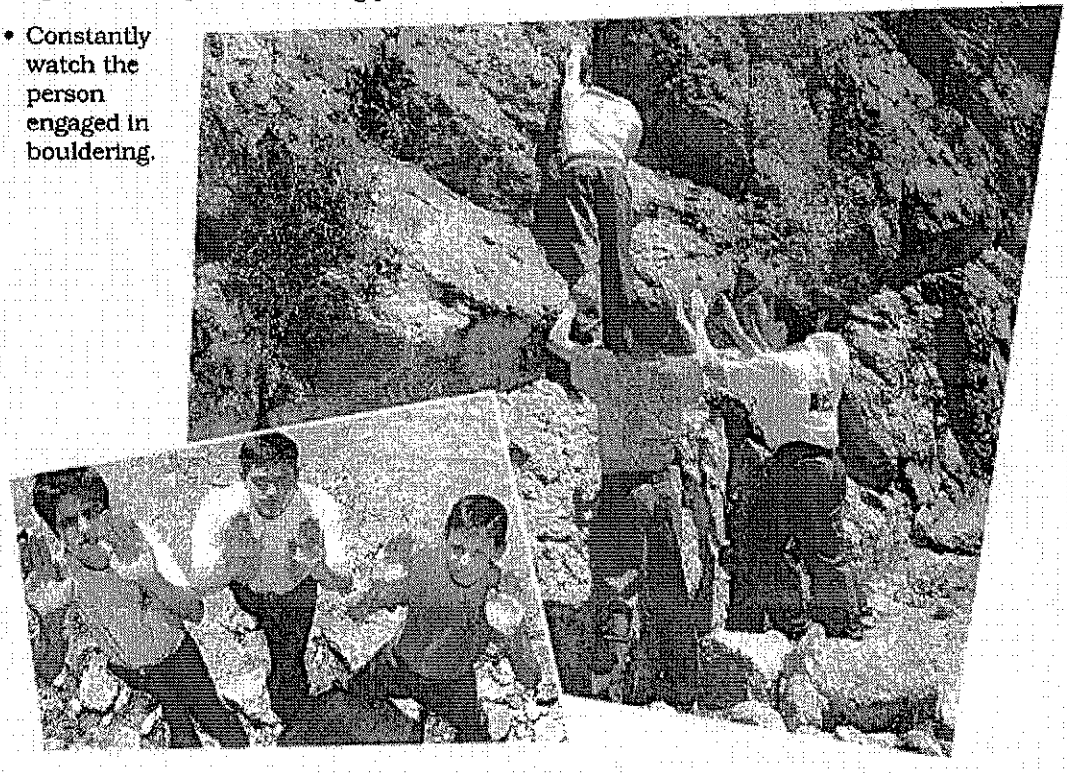
The key to safe bouldering is that climbers keep their feet fairly close to the ground, never ascending higher than their shoulder height above the ground. The goal is to move gracefully from one hold to the next. Boulderers are more likely to move sideways than they are to go up or down. They often find that bouldering is ideal for practicing the placement of their hands and feet, learning to balance, and increasing the ease with which they can move in a vertical environment.

Anyone engaged in bouldering must be protected by *spotters*. In addition to spotters, mats or pads should be placed at the base of indoor climbing walls to protect boulderers. Instructors and participants who climb higher than shoulder height above the ground must have a belay to protect them in case they fall. And they will fall. It is part of learning to climb. (For guidance on selecting appropriate sites for bouldering, see chapter 10, "Site Selection.")

Spotting

Spotting means providing protection to a boulderer/climber in such a way as to help prevent injury in case the boulderer/climber falls. Assigning spotters is important whenever someone is bouldering. Every boulderer should have at least two spotters positioned to support the head, neck, shoulders, and torso of a falling person. To accomplish this, spotters must

- Assume a stable stance. Their feet should be apart with one foot forward of the other, and their knees and elbows bent to absorb shock.
- Have their hands in the air with fingers together and with the palms turned outward or upward in a supportive position. Another method is to have spotters extend their arms downward with palms facing upward to help lower a falling person.
- Constantly watch the person engaged in bouldering.



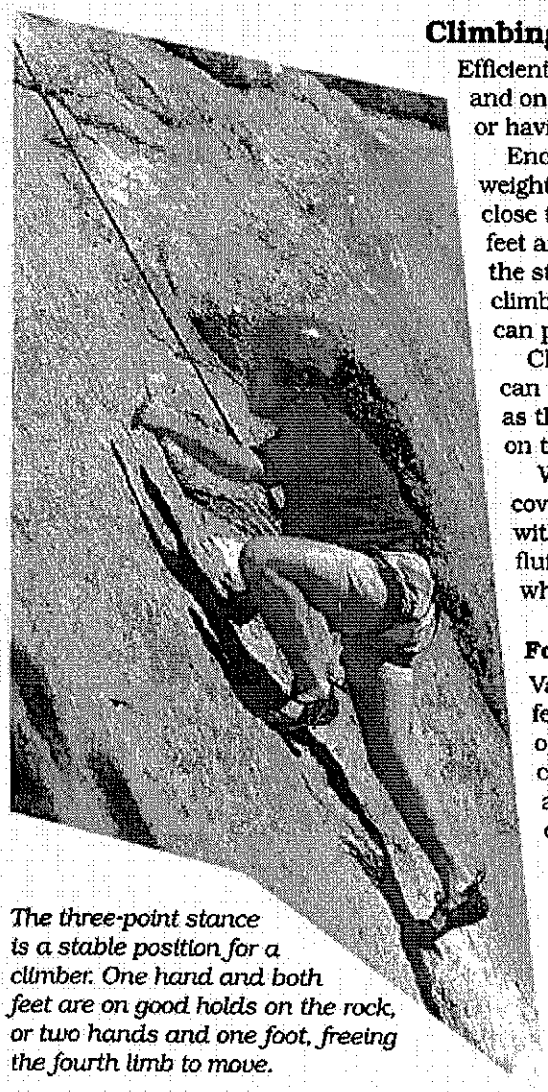
Spotters are not expected to catch a falling boulderer in midair—something that is nearly impossible even in a fall of only a few feet, and may result in injury to both parties. Rather, spotters should support the upper body of a falling person, especially the head and neck, and ease that person to a safe position.

Verbal Signals for Boulderers and Spotters

Boulderers and spotters use the following verbal signals to ensure clear understanding of their intentions and actions.

Boulderer	Spotters	Meaning
"Spotters ready?"	→	"I'm ready to start."
	"Ready." →	"I'm ready to protect you."
"Climbing!"	→	"I'll start up as soon as spotters give a go-ahead."
	"Climb on!" →	"Go ahead."
"Falling!"	→	"I'm about to fall."

FIG. 65. THREE-POINT STANCE



The three-point stance is a stable position for a climber. One hand and both feet are on good holds on the rock, or two hands and one foot, freeing the fourth limb to move.

Climbing

Efficient climbing is built on the *three-point stance*—keeping two hands and one foot on good holds while moving the free foot to a new location, or having both feet and one hand on holds as the free hand moves.

Encourage climbers to lean out a little from a wall so that the weight of their bodies rests on their feet. A climber whose torso is too close to the rock may find it difficult to look down and see where the feet are moving. Hands should be used primarily for balance while the stronger muscles of the legs do the work. Whenever possible, climbers should avoid climbing on their knees and elbows, as that can put them in precarious positions and inhibit further movement.

Climbing is a mental as well as physical challenge. Instructors can encourage participants to look ahead and plan several moves as they climb, much as a chess player looks for a larger strategy on the board rather than seeing only the next placement of a piece.

With a route in mind and a sense of the motions required to cover the distance, climbers can link together a series of moves with grace, rhythm, and efficiency. Climbers should strive to be fluid in their movements. Teach them to relax, to concentrate on what they are doing, and to remember to breathe.

Footholds

Various techniques allow climbers to gain purchase with their feet on ledges, nubs, cracks, and other irregularities on a wall or rock face. Regardless of the shoes they are wearing, novice climbers can master footwork needed for large holds. More advanced climbers will find that shoes made specifically for climbing will greatly enhance their ability to move.

The sizes and locations of holds will determine the ways climbers position their feet to take advantage of holds. Encourage participants to place their feet solidly on each hold and keep them still until they are ready to move to the next hold. The foot techniques climbers most often use are *edging*, *smearing*, and *jamming*.

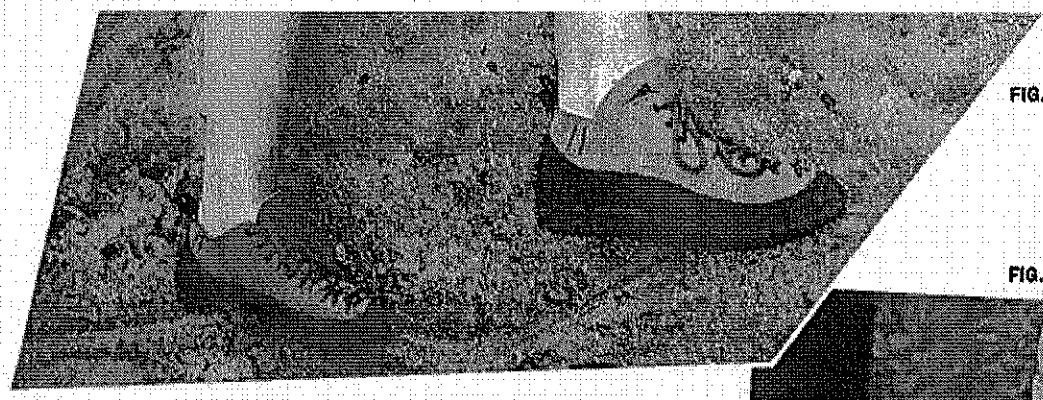
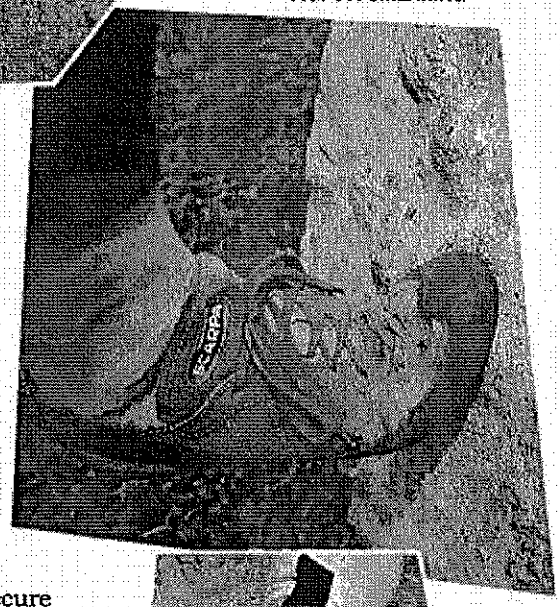


FIG. 66. EDGING

FIG. 67. SMEARING



Edging. A climber can turn a foot sideways and place the edge of the sole on a nub, narrow ledge, or other hold. It may feel most natural to edge with the inside of the shoe, although edging with the outer portion of the sole sometimes makes possible a series of moves.

Smearing. Instruct a participant to place the sole of the shoe toe against the rock. As the foot bends and takes the body's weight, the rock will dig into the sole and hold the climber, especially if the participant's body is vertical and the weight is directly over the feet. The sticky rubber soles of modern climbing shoes are intended to enhance this kind of traction. Both smearing and edging are more difficult to accomplish with hiking boots or regular athletic shoes.

Jamming. Climbers can sometimes fit their feet sideways into cracks in the rock and then twist their ankles to create a more secure stance. A "jammed" foot should wedge tightly enough against the sides of the crack to hold the climber's weight.

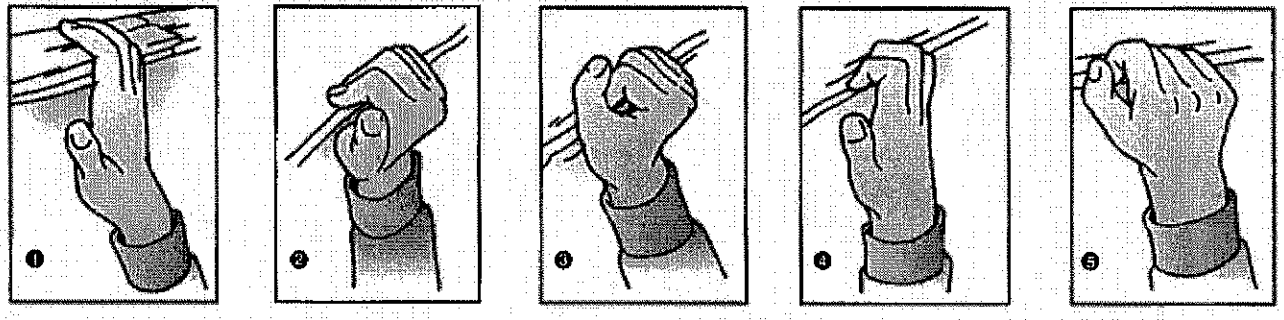
FIG. 68. JAMMING

Handholds

Holds present themselves in many shapes and sizes, from tiny pockets and small nubs to cracks and ledges. There are a number of ways for climbers to position their hands to take advantage of available holds. However, beginning climbers may not have adequate finger strength to manage some of these holds.

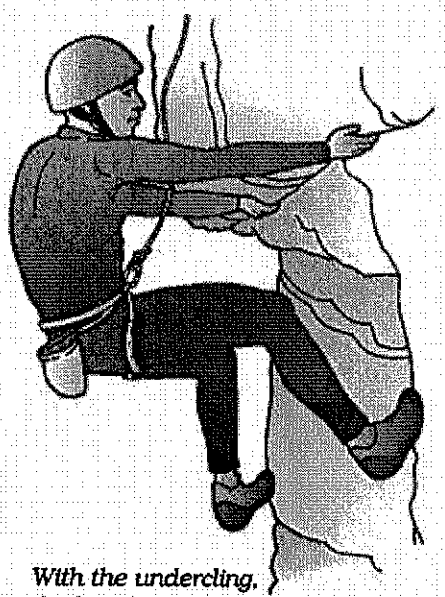
Clings. Place your fingertips on the edge of a table, bend your fingers at the second joints, and pull down with your wrist. That's a cling hold, the most common way climbers hang onto edges. If a hold is small, you might cling to it with only a couple of fingers, perhaps with your thumb braced across the top of your fingers. (Climbers sometimes call a big hold—using all four fingers and the thumb—a bucket or a jug because using it is like grabbing the lip of a large container.)

FIG. 69. CLINGS



❶ *Open grip.* ❷ *Cling grip.* ❸ *Cling grip, with the thumb used to support or brace the fingers.* ❹ *Fingertip grip.* ❺ *Bucket or jug grip.*

FIG. 70. UNDERCLING



With the undercling, the hands pull one way while the feet push the other way.

Underclings. If you are grasping a rock with your palm up rather than down, the hold is an undercling. An undercling works because your hands are pulling one way while your feet are pushing the other. Use the undercling to move sideways along a face, or for balance as you search above for your next handhold.

Jams. A crack in a wall might be just the right size for you to fit in some or all of your hand. Arch your fingers or clench your fist to tighten your hand in or against the sides of the crack. Knuckles can be taped to avoid injury.

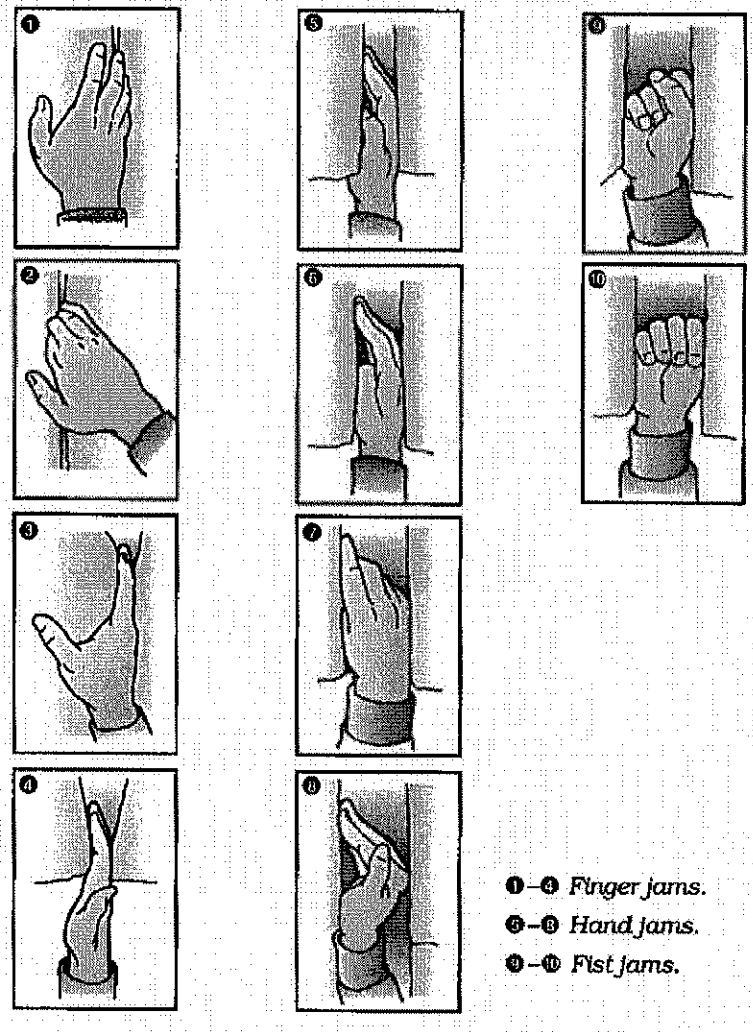
Finger jams are usually done with the thumb pointing down and the fingers twisted to lock them into a solid position. Arch your fingers or clench your fist to tighten your hand in or against the sides of the crack. Try stacking the fingers on top of one another and pressing the fingers and thumb against the sides of a crack.

Hand jams can be used in cracks large enough to accommodate the entire hand. Twist the hand and put the thumb across the palm to create pressure against the sides of a crack. When moving up past a hand jam, be aware that the pressure on the hand will change and the climber may need to change hand and body position to maintain a secure hold. Depending on the size and shape of their hands, different people will approach jamming a crack in different ways.

A *fist jam* makes use of a fist turned or tightened to put pressure against the sides of a crack.

USE JAM HOLDS WITH CARE. TWISTING HANDS OR FEET TOO HARD CAN RESULT IN INJURY, ESPECIALLY IN A FALL.

FIG. 71. JAMS



❶–❹ *Finger jams.*
❺–❽ *Hand jams.*
❾–❿ *Fist jams.*

Combination Holds

In certain situations, climbers employ holds that are a combination of handholds and careful foot placement. Combination holds that participants may find useful are *liebacks*, *counterbalance*, *chimneying*, and *mantling*.

Liebacks. Use a lieback (also called a *layback*) to negotiate where two rock faces meet to form a corner. With your hands, hold the crack where the walls join, then push against either rock face with your feet. Moving one foot or one hand at a time (while maintaining three-point contact at all times), work your way up the route. Constant pressure on your hands and feet will prevent you from falling.

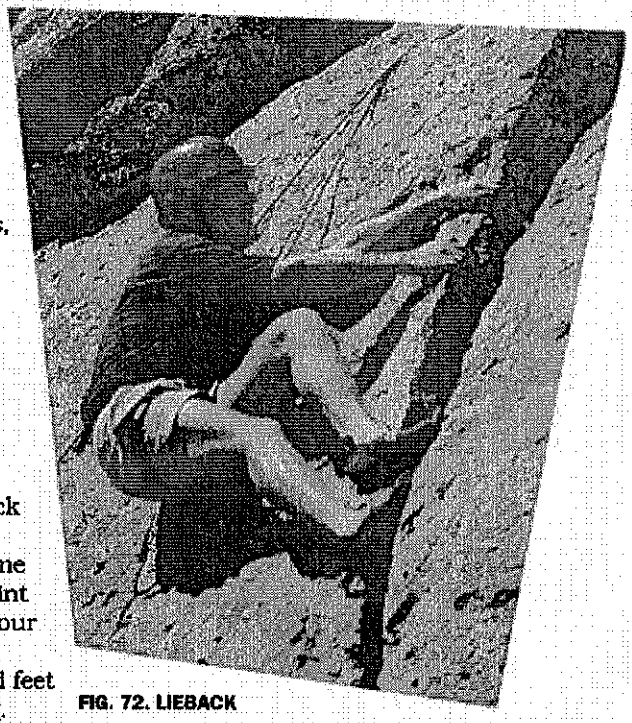
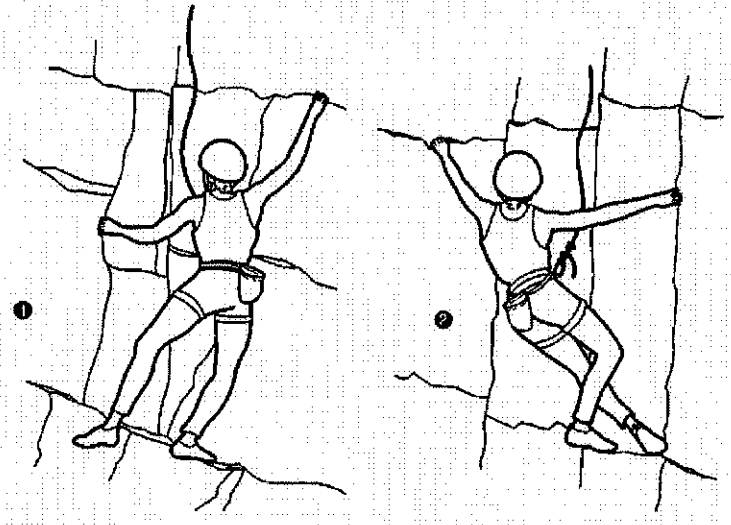


FIG. 72. LIEBACK

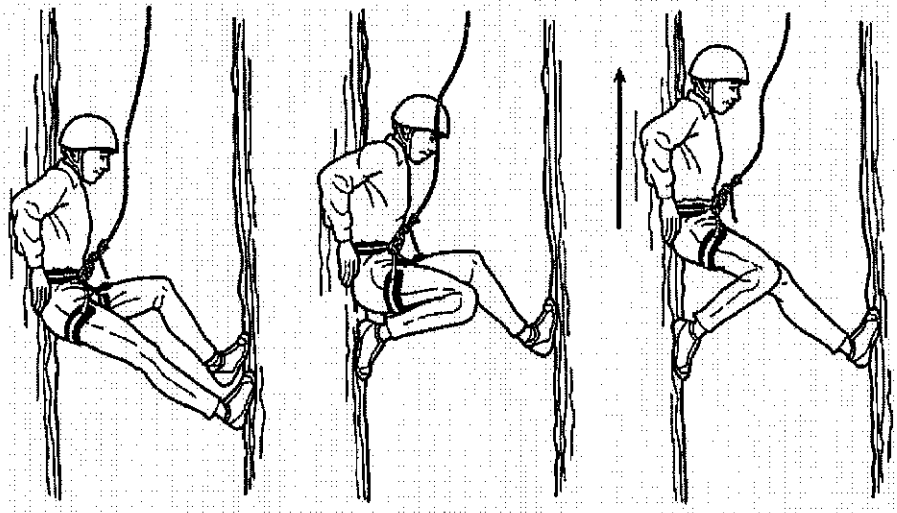
FIG. 73. TWO EXAMPLES OF COUNTERBALANCE



❶ *The left foot is extended to the side to provide counterbalance.*
❷ *The left foot is* flagged *in front of the right for counterbalance.*

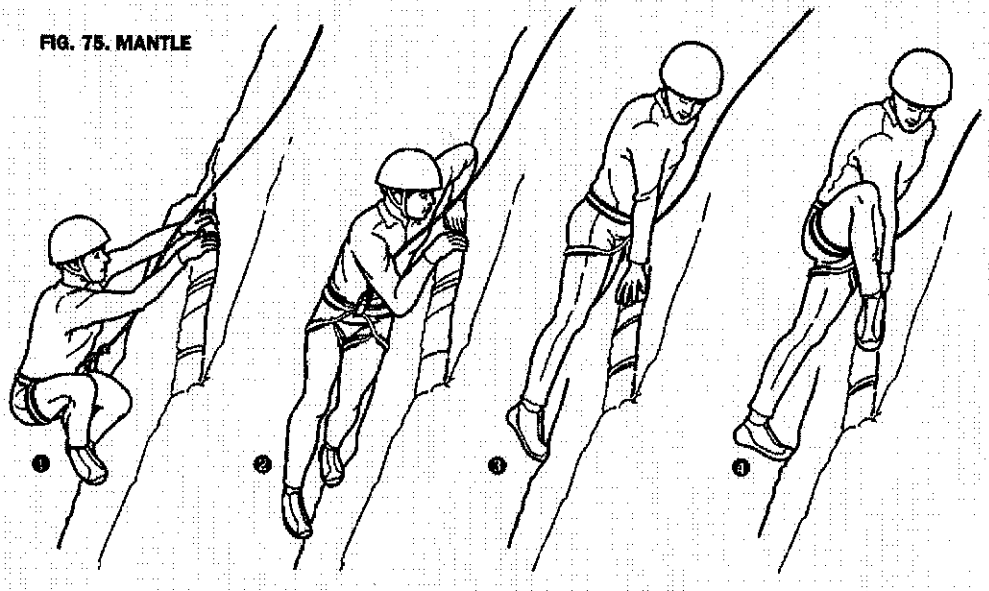
Counterbalance. A climber can sometimes extend a leg or an arm to a position that does not offer a solid hold, but rather provides balance during an ascent. Counterbalancing involves the entire body, using position and weight distribution to make the most of minimal holds by applying pressure from your feet or hands in opposite directions to maintain a position. Counterbalancing can take a variety of forms, including crossing one leg in front of the other, a move known as *flagging*.

FIG. 74. CHIMNEYING



Chimneying. If a crack in a rock face is wide enough—what climbers call a *chimney*—you can press your back against one side and your feet against the other, keeping your hands low and pressing with the palms. Or you can press one foot and one hand against each side. Move upward by "walking" up with your feet and pushing with your hands against the sides of the chimney. As you straighten your legs and push with your hands, your back slides upward against one side of the chimney. Alternate leg positions with each upward move to help balance the stresses between the legs and avoid cramping.

FIG. 75. MANTLE



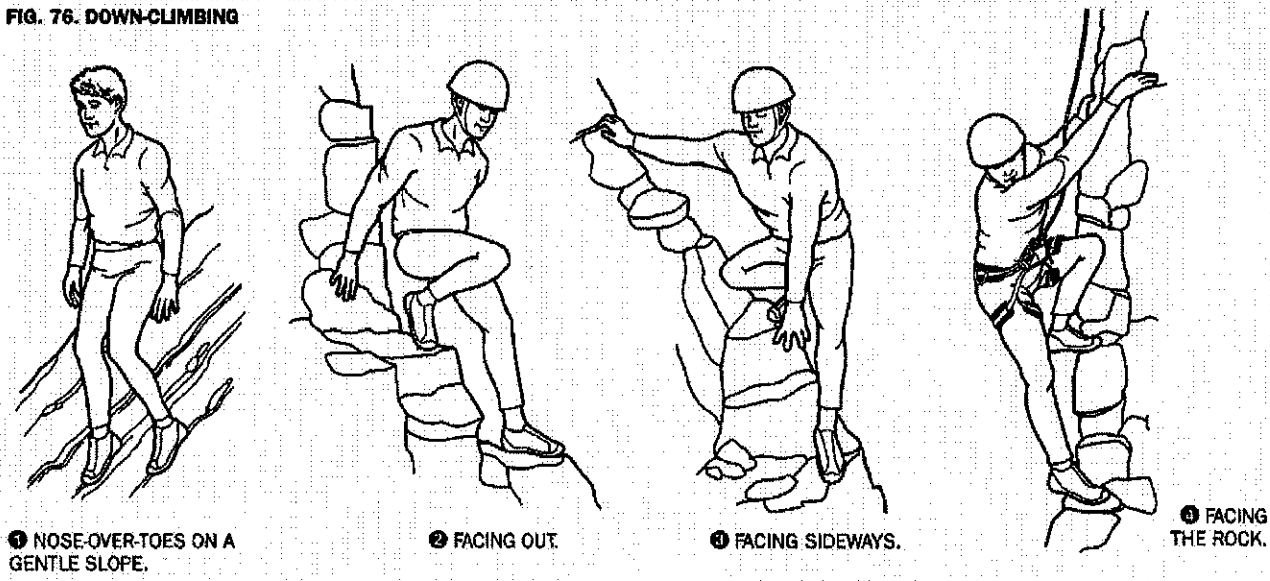
❶ *Approach the ledge.* ❷ *Place a palm on the ledge and cock your arm.*
❸ *Push yourself up, then push down as you straighten your arm.*
❹ *Lift a foot to the ledge and stand, balancing your weight over your foot.*

Mantles. Use a *mantling* move to hoist yourself onto a ledge or over the top of a wall or cliff. First, climb high enough to place a palm on the ledge. Push your body up, then push down as you straighten your arm, using your legs and your other arm as much as possible. Lift a foot to the ledge, then stand upright as if you were getting out of a swimming pool.

Resting While Climbing

Although the top-roped climbs of participants in BSA activities will seldom be of great length, novice climbers may take a while to reach the top. Now and then while making their ascents, it might be helpful for them to rest. Instructors can point out efficient techniques that climbers use to rest—locking the knees or hanging from the arms in ways that use the skeletal system to hold body weight rather than relying on muscles.

FIG. 76. DOWN-CLIMBING



❶ NOSE-OVER-TOES ON A GENTLE SLOPE.

❷ FACING OUT.

❸ FACING SIDEWAYS.

❹ FACING THE ROCK.

A helmet is needed anytime danger from falling objects exists or there is danger of a climber falling. A rope and harness are needed whenever the climb exceeds shoulder height.

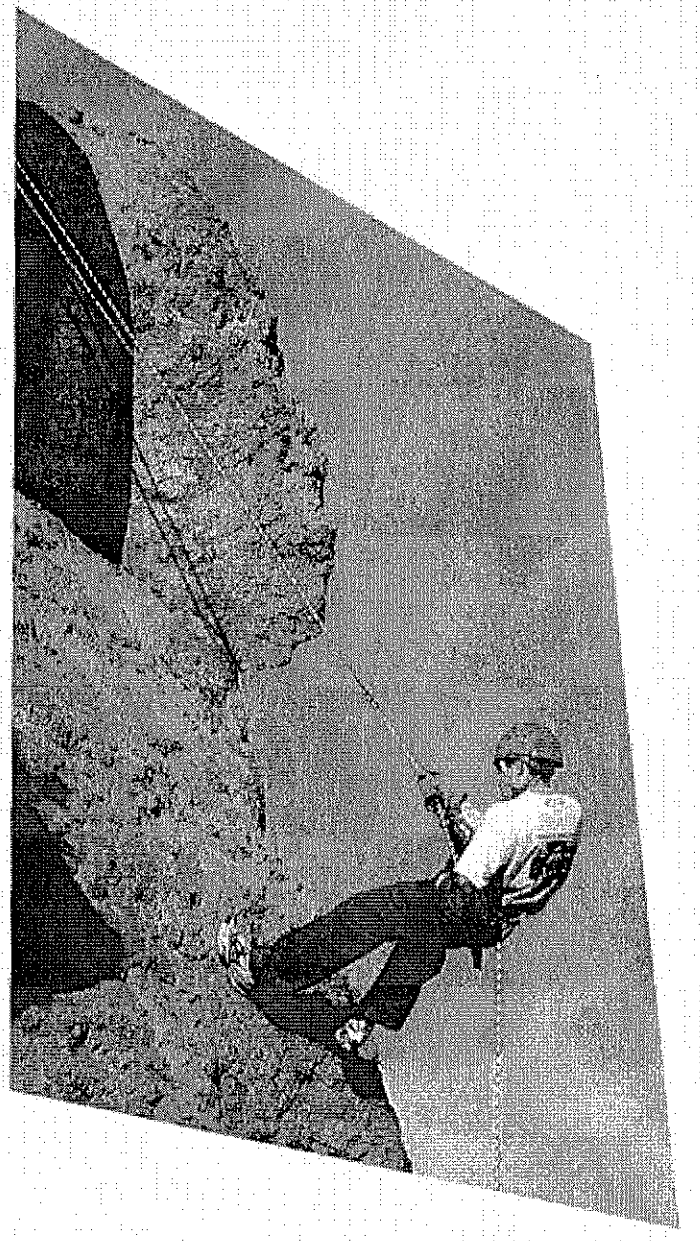
Down-Climbing

Climbing down a face can be more difficult than going up, since climbers may not be able to see or anticipate the holds as well. On gentle slopes, climbers should face out and lean forward in a *nose-over-toes* position that keeps body weight over the feet. Where terrain is steeper, they can move sideways, keeping at least one hand on the rock as they descend. On the steepest walls, it's best to face the rock and use the three-point stance. Leaning out with their weight over their feet will give them the clearest view of the holds below.

Climb Smart! Program

BSA climbing directors and instructors may have occasion to refer to the Climb Smart! program, a national public awareness campaign designed to promote safe climbing and individual responsibility. The Climb Smart! program is based on the four points of the Universal Warning:

- Climbing is inherently dangerous.
- Instruction is required.
- Climbing equipment is for climbing only.
- You are responsible for your own actions.



Chapter 9

Rappelling

Rappel is a French word meaning "recall." Climbers use rappelling to descend steep cliffs by making a controlled descent of a stationary rope. Rappelling is a vital skill for anyone interested in becoming a well-rounded mountaineer. It is also a terrific activity for novices, giving them opportunities to learn something new, to increase their self-confidence, and to enjoy an activity they are likely to find exciting.

For decades, people rappelled by wrapping rope around their bodies in ways that capitalized on friction to slow their descents. Rappel devices used by modern alpinists make rappelling more reliable, safer, and easier to master. Several belay/rappel devices are acceptable for BSA climbing and rappelling, including the figure eight device, Sticht belay plate, tube devices, and specialized belay devices such as the Grigri. Rappellers must be given specific instructions for the type of rappel device being used.

Anchors

Every rappel rope must be securely anchored. Anchoring systems must be set in line with the direction of the load that will be placed upon the rope.

Rappelling may be done with either a single rope or a double rope. Because two ropes will generate more friction when wrapped around a figure eight, the descent of a double-rope rappeller will be slower than the rappel of someone on a single line. That additional friction may discourage rappellers from attempting to make rapid descents or from bouncing down the rock face, practices that can put greater strain on rope, hardware, and anchor points.

- A rope to be used for a single-rope rappel can sometimes be attached directly to a fail-safe anchor point such as a tree, using the coil-wrap/tensionless rigging method. Otherwise, tie a figure eight on a bight near the end of the rope (back it up with a safety knot) and clip the resulting loop to the anchor system with locking carabiners. (Anyone using a single-rope rappel must be belayed with an independent belay rope.)
- To anchor a rope for a double-rope rappel, find the center of the rope and use two locking carabiners to clip into the anchor system. Use two separate figure eight on a bight knots (or double-loop figure eights) so that the two ropes are independently attached to the anchor. (Anyone using a double-rope rappel must be belayed either with an independent belay rope or with a fireman's belay on both of the ropes.)

- Both the single-rope rappel and the double-rope rappel can be set up as releasable rappels that could prove useful in the case that something becomes jammed in the rappel device. See page 96.

(For guidelines on using the coil-wrap/tensionless rigging method and other forms of anchoring, see chapter 6, "Anchor Points and Anchoring Systems." Later in this chapter, find guidelines for belaying rappellers.)

Rappel Rope

All cordage used for climbing (climbing ropes, accessory cord, and webbing) must be designed for climbing and used according to the manufacturer's recommendations. All dynamic climbing ropes must be UIAA- or CEN-approved. All static ropes used for rappelling must have a tensile strength (breaking strength) of at least 22.2 kiloNewtons (5,000 pounds) when new. A diameter of 7/16 inch or 11 millimeters is recommended for static rappelling ropes. All ropes must be new when procured.

(For more on rope types and measurements, see chapter 4, "Rope and Rope Handling.")

The established routes used by most BSA climbing/rappelling programs are of known height, so it is likely that a rope set up for rappelling will reach all the way to the bottom with plenty of slack to spare. Even so, instructors should get in the habit, every time they attach a rappel rope to an anchor, of making sure the rope is long enough so that there is no chance a participant can slide off the rope before reaching a safe, off-belay stance on the ground. A stopper knot must be tied in the end of the rappel rope to prevent anyone from rappelling off the end of the rope.

Every rappeller must be belayed with either an *independent belay rope* or a *fireman's belay*.

- **Independent belay.** The rappeller is connected to a belay rope tied directly to his or her harness with a figure eight follow-through knot backed up with a safety knot. The belay rope may or may not be connected to a different anchor than the rappel rope, depending on the type of anchor system used.

  As a belayer, begin by double-checking the belay system to be sure it is secure, that you are properly anchored, and that the belay device is correctly set. The bulk of the belay rope should be loosely piled next to you on your brake-hand side. Exchange verbal signals with the rappeller. As the rappeller descends, gradually release the belay rope through the belay device.

- **Fireman's belay.** In a double-rope rappel with the center of the rope clipped into an anchoring system, use two separate figure eight on a bight knots or two double-loop figure eights (super eight or Canadian eight). One line can be considered to be the rappel rope while the second line serves as the belay rope, as long as a fireman's belay is in place at the bottom of the ropes.

  To use the fireman's belay, position yourself at the bottom of the route and grasp both lines of the rappel rope. Exchange verbal signals with the rappeller. As the rappeller descends, be ready to pull down on the rope with enough force to increase friction on the rappel device and thus slow or stop the rappeller's progress.

  Some rappellers may wish to use an independent dynamic belay line in addition to a two-rope rappel. If this is used, the fireman's belay is not required.

Why Rappellers Are Belayed

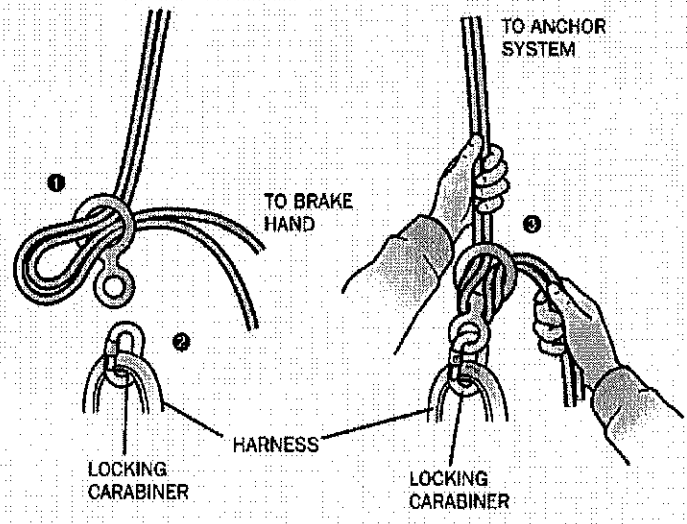
Belaying rappellers provides an important margin of safety, especially for participants with beginning and intermediate skills. Anyone involved in BSA rappelling activities must be belayed with an independent belay line. (For more information, see chapter 7, "Belaying and Belay Signals.")

Rappel Program Protocol

Standardized routines at a rappel site will help ensure the safe and orderly management of activities. Among the most important guidelines are these.

- Tie an appropriate knot or knots to the anchor system.
- When a tree is the anchor point, the rappel rope may be secured directly to it using the coil-wrap/tensionless rigging method.
- To keep them from tangling or rubbing together, the belay rope is ideally set at a slight angle to the rappel rope.
- The rappel rope hanging down the route should be perpendicular to the edge of the cliff and free of obstructions including brush, loose rock, etc.
- Use burlap, pieces of carpet, or other padding to protect rappel ropes from the sharp edges of cliffs.
- Participants must be tied into the belay as soon as they approach the top of the rappel route. If they are attached to a safety line, they remain clipped into it until the belay rope has been secured and the rappeller is on belay. Protected by the belayer, they can then secure themselves to the rappel rope.
- *Never expose an unbelayed, unsecured participant or staff member to a dangerous situation.* Everyone must be belayed or attached to a safety line before approaching the edge of a cliff. This also applies to any set-up and take-down work.
- Long hair and loose clothing must be secured to prevent them from entangling in the rappel rope or hardware. Rings, watches, and dangling jewelry must be removed. Pockets must be emptied of any items that could injure a rappeller such as pens, pencils, combs, and items like compasses that have sharp edges.
- Each rappeller must wear properly fitted leather gloves to prevent rope burns and improve control. The director will determine the appropriate gloves for the site.
- As with all climbing/rappelling activities, rappellers, belayers, instructors, and anyone else in the vicinity of the rappel route must wear climbing helmets that are UIAA- or CEN-approved.
- Keep onlookers away from the fall zone where they could be in the path of falling objects.
- Instructors independent of the belayer should position themselves at the top of the route to prepare participants for rappelling, and at the bottom to help them disconnect from the rappel and belay ropes and move to a safe location. Instructors on the ground can also monitor the movement of rappellers on the face, direct traffic among participants waiting their turns to climb, and in other ways keep the operation running smoothly.

FIG. 77. ATTACHING A FIGURE EIGHT DEVICE FOR A DOUBLE-ROPE RAPPEL



❶ *Figure eight rappel device.*
❷ *Attaching rope to the device.*
❸ *Figure eight rappel device in use.*

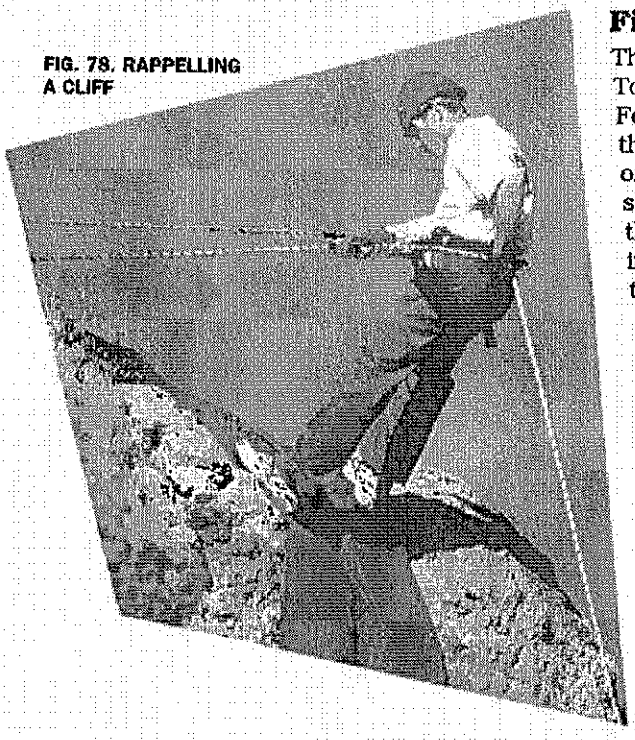


FIG. 78. RAPPELLING A CLIFF

Figure Eight Descender

The most commonly used rappel device is the *figure eight.* To secure it to a rappeller, form a bend in the rappel rope. Feed the bend through the back of the larger opening of the figure eight, then loop the bend over the smaller portion of the device. If the rappeller is right-handed, the rope should hang from the right side of the figure eight (from the left side for a left-handed rappeller). Next, use a locking carabiner clipped into the smaller opening of the device to secure the figure eight to the rappeller's seat harness.

A right-handed rappeller should consider the right hand to be the *brake hand,* the left to be the *guide hand.* With the guide hand, the rappeller lightly holds the rappel rope above the figure eight device, then grasps the trailing end of the rope with the brake hand and brings it tightly alongside the right buttock. **The brake hand must never leave the rope!** (For left-handed rappellers, the left hand is the brake hand, the right hand serves as the guide hand, and the rappel rope passes along the left side of the body.)

As the rappeller backs down the cliff, friction created by the rope's motion through the rappel device will slow the descent. The rappeller can control the speed or completely stop the descent by pulling the rope more securely against the body with the brake hand. (Participants who have experience with belay devices may recognize that the principles involved in rappelling with a rappel device are somewhat similar to those practiced by belayers, including the designation of a guide hand and a brake hand.)

An instructor stationed at the bottom of a rappel can monitor the progress of each participant and provide guidance and encouragement. That instructor can serve as the belayer, standing ready to place tension on the end of the rappel rope (a *fireman's belay*) to help a participant control the rate of descent.

Rappelling Technique

Rappelling is usually a matter of simply walking backward down the face of a wall while controlling one's speed with the rappel device. A seasoned rappeller should have no difficulty with that concept, but novices can find it completely counter-intuitive to lean backward over open space. They may be nervous and even fearful. One way to help beginners is to provide introductory training on flat ground or on a small hill. Using a foot stop, participants can be instructed to lean backward until they are sitting on the ground.

Instructors can help participants overcome their concerns by helping them understand that the anchors are secure, the belayer will provide unquestioned security, and the basic rappelling technique will ensure a safe trip down. Recognizing the anxieties of rappellers and guiding them in a calm, reassuring manner will greatly enhance the experience for participants and for instructors.

After a participant has been secured to the belay system and the rappel rope, the instructor at the top of the route must double-check the way the participant is tied in to the belay and rappel ropes, see that the belayer is positioned and ready, and make a quick visual survey of the anchoring systems. When everything is in order, the rappeller may commence in the following sequence.

❶ Keep the guide hand away from the rappel device, and the brake hand on the rope and alongside and behind the hip.

❷ Exchange the correct verbal signals with the belayer. (For a discussion of verbal signals used by rappellers and belayers, see chapter 7, "Belaying and Belay Signals.")

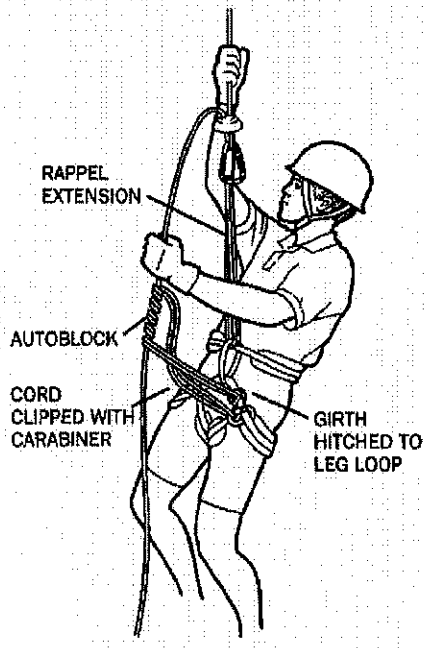
❸ Back to the edge of the cliff and position the feet a shoulder-width apart.

❹ With knees slightly bent, lean back and place body weight on the rappel rope. The correct position is similar to sitting in a lawn chair.

❺ Take small steps and walk backward down the face, slowly releasing rope through the rappel device. The rappeller should start backing down with his feet just before reaching a horizontal position at the edge of the cliff to avoid being inverted. Keep the feet flat against the wall and the weight on the heels.

Instructors should discourage rapid descents, bounding rappels, pendulum swings, and any other actions that can put unnecessary strain on the rope and anchoring systems. Instructors must also set a good example by using proper technique whenever they are rappelling.

FIG. 79. AN EXAMPLE OF AUTOBLOCK BACKUP FOR A RAPPEL (INDEPENDENT BELAY LINE OMITTED FOR CLARITY)



AUTOBLOCK

An autoblock is a method of using accessory cord or webbing as a backup or an "extra hand" to the brake hand of a rappeller.

An autoblock is typically made using 4- to 6-millimeter accessory cord tied into an 18-inch loop or with a 24-inch sewn runner, preferably made of nylon and not Dyneema.

Girth hitch the loop around the leg loop of the harness on the same side as the brake hand of the rappeller. Wrap the doubled material three to five times around the brake side of the rope and then clip the end back to the leg loop with a carabiner.

Always check to make sure the autoblock will grab by pulling up on the rope. If it slips, disconnect the carabiner and add more wraps until it grabs. Also make sure that the autoblock cannot touch the rappel device as it could fail to grab or get stuck in the device.

When rappelling, one technique is to place the brake hand above the autoblock wraps and slide them down as you let the rappel rope feed through them. Another technique is to place the brake hand below the autoblock wraps and use the guide hand above it to bump or slide it down. This also puts two brake hands on the rope, giving more control. If the rappeller wants to stop descending, let the autoblock slide up, and it will hold the rope.

Beginning Descents

A key role for instructors at the top of a rappel route is helping rappellers position themselves to begin their descents. A special case can occur when the rappel rope is anchored at a point lower than the waist level of a rappeller. An instructor can ease the situation by gathering a few feet of slack in the rappel rope and using it to lower a rappeller down the cliff to a point where it is possible to assume the correct rappel stance. Remember that everyone near the cliff's edge, including the instructor, must be secured to a belay or a safety line.

Releasable Rappel

Single-Rope Rappel

The preferred technique is to employ a static rappel line as the activity rope and to tie an independent dynamic rope for the belay into the climber's harness. The lines are tied to the anchor system. If the static rappel rope is twice the height of the rappel, you have the option to lower the rappeller to the ground. For example, for a 40-foot rappel, at least 40 feet of extra rope must remain at the anchor.

Leaving the appropriate length of rope, use a belay device and a mule knot or a Münter/mule knot with an HMS carabiner (*halb mastwurf sicherung*, translated from German as "half clove hitch") to anchor the rappel rope.

If the rappel device becomes jammed, follow this procedure.

❶ Tie off (with a mule knot) the dynamic belay rope.

❷ Slowly untie the mule knot on the static rappel rope. With the belay device or the Münter, it is easy to lower the static rappel rope to create some slack. The rappeller is now supported by the belay rope.

❸ Clear the rappel device.

❹ At the anchor, take the slack out of the static rappel rope and tie it off again.

❺ Untie the mule knot in Step 1 that is locking off the belay line. Lower the rappeller a few feet so that his weight is back on the static rappel rope. The rappeller may now continue the activity.

Double-Rope Rappel

A common technique is to employ two independently anchored static rappel ropes with a fireman's belay. The lines are tied to the anchor system. If each static rappel rope is twice the height of the rappel, you have the option to lower the rappeller to the ground. For example, for a 40-foot rappel, each static line must have at least 40 feet of extra rope at the anchor.

On each rappel rope, leaving the appropriate length of rope, use a belay device and a mule knot or a Münter/mule knot with an HMS carabiner.

If the rappel device becomes jammed, follow this procedure.

❶ Have the fireman's belayer pull on the two ropes to lock off the rappeller.

❷ Slowly untie one of the mule knots on one of the static rappel ropes.

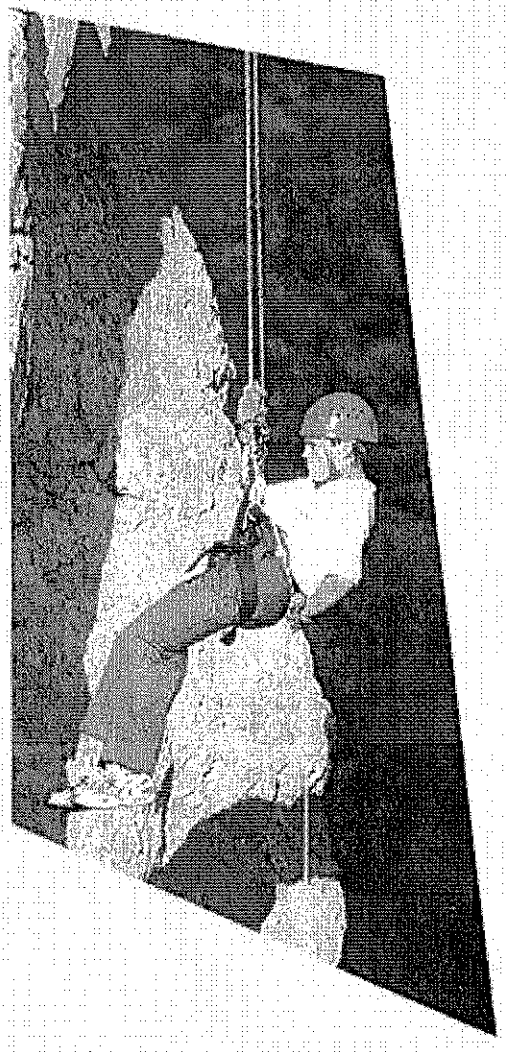
❸ Use the belay device or the Münter to lower one of the static rappel ropes to create some slack. The rappeller is now being supported by the other static rappel rope.

❹ Clear the obstruction from the slack rope.

❺ At the anchor, take the slack out of the now-cleared static rappel rope and tie it off again.

❻ Repeat the procedure with the other rappel rope. Both ropes are now clear, and the rappeller may continue the activity.

In either case, the double length of rope needed for the rappel will allow belayers to lower the rappeller all the way to the ground if necessary.



Site Selection

Not many years ago, climbing was almost always practiced in the mountains. Today, however, climbing areas can be found throughout the country. Among the most popular kinds of sites are natural rock faces and artificial walls.

Natural Rock Faces

Steep cliffs, mountainsides, and canyon walls have long attracted climbers to find handholds and footholds on rock faces. Trees, boulders, or rock outcroppings serve as anchor points for belay and rappel ropes.

Some of these rock faces are in Scout camps. Many others can be found in state and national parks or other public lands, and on private property. Whatever the case, all climbers must secure permission from property owners or land managers before setting out on a climb, and then follow any guidelines a public agency or private landowner may require.

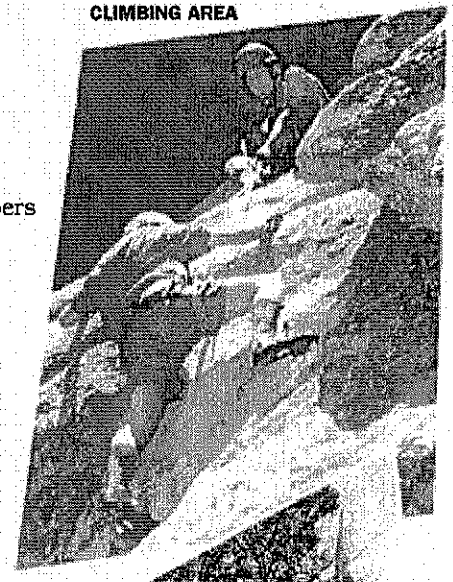
Artificial Walls

In recent years, outdoor climbing walls have been built in some of America's city parks and Scout camps. These walls are often formed from concrete with rocks embedded to serve as holds for hands and feet. Metal rings set into the tops of the walls provide anchors for belay ropes. At the base of the walls may be a bed of gravel or shredded rubber to cushion the impact of boulderers jumping down.

A growing number of schools, climbing clubs, and climbing gyms have indoor walls that challenge climbers from beginners to experts. Handholds of different shapes bolted to the walls create climbs of varying difficulty and interest. The handholds can be moved around to provide climbers with fresh routes. These holds will occasionally need to be retightened. Belay ropes anchored above the walls allow climbers to be top-roped as they practice their moves.

Scouts attending summer camp may enjoy climbing and rappelling outdoors on towers that offer a number of faces with routes of differing degrees of difficulty. Permanent or temporary walls established outside or indoors may be fairly high, up to 30 feet or more. Other walls are horizontal rather than vertical, providing climbers with opportunities to practice traverses and bouldering moves while ascending no more than a few feet above the ground. Provision should be made to monitor or disable climbing facilities to a height of 12 feet when not in use. Plywood panels or a heavy tarp placed over the climbing holds may be used to secure climbing facilities.

FIG. 80. NATURAL CLIMBING AREA



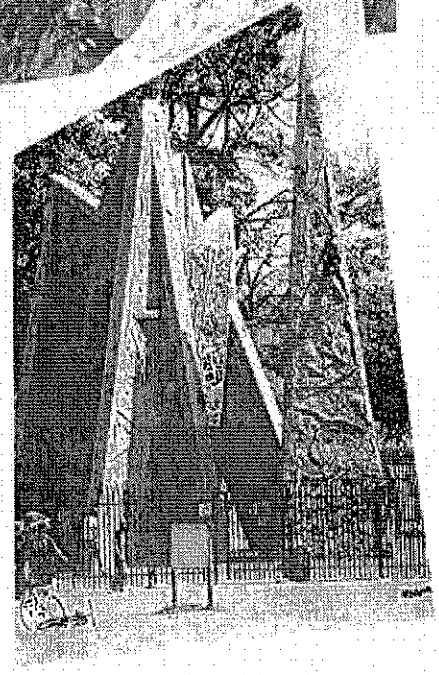


FIG. 81. ARTIFICIAL CLIMBING WALL

Selecting a New Site for a BSA Climbing/ Rappelling Program

Choosing an outdoor location as the site of a climbing/rappelling program requires a good deal of thought and the input of knowledgeable people. The following steps will help ensure that a site is challenging, safe, and worthwhile.

- Engage the assistance of local rock-climbing authorities or BSA climbing directors from other areas who have extensive, safe climbing experience and an understanding of the program the BSA offers young people. Rock climbing organizations may also be able to provide advice.
- Avoid areas where rock is unduly fractured, brittle, loose, slippery, or crumbly. Easily dislodged rock will present a hazard to climbers, rappellers, and bystanders.
- The site should be reachable by road or trail, or should have other quick access to emergency aid within a reasonable time.
- Participants in warm, arid regions may be more comfortable on climbing and rappelling faces oriented toward the north or east, out of direct afternoon sunlight.
- Depending on the number of participants expected during normal sessions of the program, establish climbing routes of 30 to 60 vertical feet. If regular operations will involve a large number of climbers, shorter routes will allow participants to complete their ascents more quickly. Several routes of varying difficulty are preferable, allowing instructors to match the routes for a day with the experience level and abilities of participants, or to encourage participants to select the route they most want to test.
- The incline for climbing should be a 40° to 80° slope, with 60° to 70° slope being about right. There should be plenty of holds for hands and feet, preferably a variety of cracks, ledges, and protrusions. Relatively smooth surfaces will not do, especially for beginning climbers.
- A rappelling pitch should have a reasonably constant slope from top to bottom. Avoid routes with large ledges or benches that could interrupt constant tension on the rappel rope or interfere with the ability of instructors to observe and monitor rappellers throughout their descents.
- To ensure a feeling of adventure and accomplishment, a rappel route should have a vertical length of at least 30 feet. Descents require only a few moments for each participant to complete, so a program can operate efficiently even with long rappels.
- Every route for climbing and rappelling must feature fail-safe anchor points, preferably large, living trees or solid rock projections. If artificial protection must be installed, use bolts of at least ⅜-inch diameter approved for climbing purposes, and have them installed by a qualified expert approved by the council's climbing/rappelling committee. (For more on anchoring, see chapter 6, "Anchor Points and Anchoring Systems.")
- There must be sufficient area above each route to accommodate at least three people comfortably—a belayer, an instructor, and a climber or rappeller. (A route on which a belayer will lower a top-roped climber to the ground does not require as much space at the top, but does need enough room that an instructor can safely install anchoring systems each day before participants begin to climb.)
- If participants will climb and then rappel in sequence, establish a safe path from the top of the climb to the top of the rappel. The path should not run next to the edge of a cliff; if it does, install a safety line and require participants to clip into it before unclipping the belay rope. A safety line keeps participants out of harm's way when moving to the next activity.

- There must be good places for belayers to position themselves, ideally where they can brace their feet against the direction of a potential fall.
- Remove any trees, limbs, shrubs, or other obstacles that could interfere with climbing, rappelling, or belaying without significant harm to the vegetation or geologic formations. If that is not possible, choose another site. Follow the Leave No Trace principles.
- Place routes so that participants can be observed from below throughout all climbs and rappels, and preferably from above as well.
- Consider where bystanders and participants waiting their turns to climb will gather. The gathering area must be well removed from the line of fall of rocks or climbing equipment. Unless they are belaying or spotting, keep bystanders out of the safety zone below the climb or rappel.
- Establish a secure place to store ropes and hardware. Whether near the site or at some other location, the equipment cache must be protected from rodents, weather, and vandals.
- Toilet facilities should be convenient, both for the comfort of participants and for the protection of the environment.
- The site should have a source of safe drinking water. Otherwise, instructors and participants must bring their own water.

Evaluating the Safety of a Climbing/Rappelling Area

The temperature, lighting, and stability of an indoor climbing area can be controlled as easily as in any sports gym. At outdoor climbing areas, however, conditions will vary. Before beginning a day's activities, instructors should take a few minutes to check the overall status of an outdoor climbing/rappelling site and note anything that might have an impact on the safety and experience of participants. Here are some factors to consider.

Weather

Check the weather forecast before departing for the climbing site. Have an alternate plan for weather conditions that make climbing unwise. If it is raining, stay off rock faces. Water can make climbing surfaces slippery. Wet ropes can be difficult for belayers to hold, and climbing equipment that has become damp must be dried before going into storage.

Lightning can be a serious concern, especially in mountainous areas. Afternoon storms may develop quickly, catching climbers unprepared if they are not vigilant. Many climbing/rappelling program sites are near ridge tops that may be targets of lightning strikes; lightning can also hit locations deep in valleys. Carabiners and other metal climbing hardware may attract electrical currents from lightning, as can wet rope. Whenever there is bad weather or lightning in the area, immediately suspend all climbing/rappelling activities and retreat to a safe location.

Rock

The kind of rock found in an area can make a big difference in the safety of climbing. In general, hard rock such as granite offers climbers the best surfaces. Softer rock or rock that is fractured or layered, such as shale, may crumble or slide away under a climber's weight. Seek advice from someone in the area on the best climbing sites.

Look above the climbing area to see what might be waiting to fall. Stay away from faces that are beneath leaning pinnacles or boulders. Listen for the sound of small stones bouncing down the rock—an indication that there is unstable material above.

Climbing and Rappelling Towers and Artificial Climbing Walls

The "Resources" section in this book includes plans to build climbing and rappelling towers.

Portable Climbing Structures

Portable climbing structures may be appropriate for use at Scout shows, camporees, or anywhere that a fixed structure or natural climbing site is unavailable. Portable climbing/rappelling structures must be securely anchored. The surface of all climbing/rappelling structures should not have protruding hardware.

If mobile climbing walls are used, the following items must be considered and implemented:

- Manufacturer's recommendations
- Appropriate state and local laws
- Applicable climbing and Project COPE standards
- Appropriate use of the facility
- Replacement schedule for cables and equipment
- Anchoring and wind resistance

It is recommended that participants not be charged a fee because this might incur additional regulations and/or liability.

Units using portable climbing structures must conduct their activities according to the guidelines laid out in Climb On Safely. District and council activities using portable climbing structures must be conducted according to the current Project COPE and Climbing/Rappelling National Standards.

Chapter 11

Conducting a Climbing/ Rappelling Program

The smooth operation of a BSA climbing/rappelling program relies on instructors who are well versed in what they will present, and upon the orderly involvement of participants in the program's activities. This chapter provides an example of a successful presentation at an outdoor climbing area.

- Before participants arrive, instructors at the site check each rope and piece of hardware for signs of damage or wear, then establish anchors and install ropes for rappelling and for belaying climbers and rappellers. They set out helmets and harnesses where they will be easily accessible. They make sure that all items required for a safe program are readily available (including a first-aid kit and a radio or cell phone), as well as any gear to be used for demonstration and discussion (extra carabiners, lengths of rope for knot tying, etc.).
- Instructors have in their possession any relevant information about medical conditions that might affect a participant's experience. The BSA climbing director and the adult unit leaders may help instructors determine the best ways to provide a satisfying experience for people with particular needs.
- Participants have been previously informed of the nature of the activities they will encounter at the climbing/rappelling area, and know what they are to bring and what they are to wear. Recommend that beginning climbers wear long pants.
- Participants may be accompanied to the climbing area by their own group leaders, by BSA climbing instructors, or by other members of a camp staff. There is an obvious place for them to gather and for instructors to conduct the following presentation.

Program Presentation

A. Opening

❶ Greet participants and help them feel welcome. Find out where they're from and what they expect from the next few hours.

❷ Introduce the BSA climbing staff.

❸ Learn something about each participant's climbing/rappelling experience. That information may lead instructors to divide participants into ability groups, each tackling routes appropriate for their level of skill.

❶ Stress that this program will introduce the basics of climbing and rappelling, but that participants will not learn enough or gain sufficient experience to start climbing on their own. Explain that in the future they may want to find reputable organizations or climbing gyms for further instruction and practice. Emphasize again that the day's activities will offer a taste of a great sport, but **will in no way prepare participants to try rappelling or rock climbing without qualified supervision.**

❷ Review each point of Climb On Safely, the BSA's recommended procedure for conducting climbing and rappelling activities.

B. Orientation

❶ Check the clothing and footwear of participants, ensuring that they are dressed appropriately for the area and the weather.

a. Shorts and short-sleeved shirts are fine for temperate or warm conditions.

b. Footwear—boots with narrow welts are best. Tennis shoes are adequate for friction climbing. Sandals and bare feet must not be allowed.

c. Loose-fitting clothing may be hazardous, since it may tangle in rappel systems. Clothing should be tucked inside of the harness so that instructors can readily observe harness buckles and rope tie-ins.

d. Long hair must be secured.

e. Necklaces, bracelets, earrings, watches, rings, belt buckles, and other jewelry should be removed and held by a group leader or stowed in a prearranged secure storage area.

f. Glasses (regular or tinted) may be worn, but consider using a strap to keep them from slipping off.

g. When they are not yet wearing helmets, encourage participants to use appropriate sun protection—hats; sunscreen with a sun protection factor (SPF) of at least 15—and to drink plenty of fluids during the program. Caution them to keep sunscreen and insect repellent from coming into contact with rope or webbing.

❷ Provide an overview of equipment.

a. Briefly explain the rope and hardware used for climbing and rappelling activities, and describe how the anchor systems are designed to hold even if several anchor points fail.

b. Underscore the danger of using gear that is damaged, worn out, or inappropriate, and tell how instructors check equipment and maintain records of its use.

c. Describe the kinds of rope approved for BSA climbing and rappelling. Explain the characteristics of *dynamic* rope and *static* rope.

d. Go over proper rope care:

- Never step on a rope. That can force grit into the fibers and cause the rope to wear out rapidly.
- Protect the rope from sharp edges or abrasive rocks. Pad edges with burlap or old canvas.

- A moving rope should not cross webbing or another rope. Heat caused by the movement can melt and weaken the rope and/or the webbing.
- At the end of a program, remove knots from a rope and coil it for storage.
- Store rope away from direct sunlight to help prevent undue ultraviolet damage.

❸ Show participants the knots they will use that day while climbing and rappelling. Instructors may want to provide participants with 6-foot lengths of retired kernmantle rope so that they can practice knot-tying while waiting their turn to climb or rappel.

The knots generally used by participants are:

- Figure eight follow-through (for tying in to the climbing rope)
- Safety knot (for backing up other knots)

❹ Discuss verbal signals.

a. Explain the reasons for using verbal signals while climbing, rappelling, bouldering, and belaying.

b. Lead participants in practicing the verbal signals they will use during the day's activities.

C. Helmets and Harnesses

❶ Before any instructors or participants move close to the climbing/rappelling area, they put on UIAA- or CEN-approved helmets that are properly fitted and correctly worn.

❷ Participants who will be belaying, climbing, or rappelling put on seat harnesses. Instructors check the security of each harness after a participant has put it on, then check it again when the participant ties in to climb, rappel, or belay.

❸ Emphasize the importance of doubling the tail back through the buckle of a harness waist belt that requires it.

❹ If tied-seat harnesses are to be used, instructors provide clear direction about how the webbing is to be fitted and tied, and then check and double-check the harness tied by each participant.

D. Belaying

❶ Explain the basics of belaying, including the fact that belayers may wear light gloves to help protect their hands.

❷ When instructors will do the belaying, they take their positions; double-check the security of anchors, belay systems, and harnesses; and get ready for the first climber or rappeller.

❸ Participants who volunteer to act as belayers should have received previous instruction and be able to demonstrate the required skill. Instructors double-check their harnesses, then help them secure themselves to the anchoring system and assist them in double-checking anchors, harnesses, and the belay system. (An instructor remains near a participant belayer to monitor the belaying, to offer guidance, and to step in if a belayer is not providing appropriate protection for a climber or rappeller.)

E. Climbing

❶ Instructors demonstrate proper tie-in techniques, verbal signals, belaying, and climbing methods, including the three-point stance and a variety of hand- and footholds. Use correct form in all demonstrations and follow standard belaying methods to the letter. Participants will learn as much from what they see instructors do as from what they hear instructors say.

❷ Before participants begin to climb, instructors station themselves at the bottom and the top of a climbing route. (In climbing gyms and at outdoor sites where climbers will not go over the top of a route but, rather, will be lowered to the ground by belayers, instructors may be stationed only on the ground.)

❸ Have a participant tie in to the climbing rope using a figure eight follow-through knot tied directly to the harness, then back up that knot with a safety knot tied in the tail of the rope. Double-check to see that each knot is correctly tied and sufficiently tight.

❹ Monitor the exchange of verbal signals between the climber and the belayer, insisting that they use the correct signals in the correct order.

❺ Provide supportive encouragement as a climber ascends. Listen carefully to the questions and concerns of participants, keep comments positive, and at all times bear in mind the safety and well-being of everyone at the site.

❻ An instructor greets participants as they reach the top of the climb, then guides them to the next station of the program. In some cases, that means simply untying them from the climbing rope and directing them to a path that leads to the top of a rappel route.

At sites where participants will travel near the edge of a cliff, an instructor clips them to a safety line while they are still on belay. After they are protected by the safety line, the belayer releases the climbing rope so that a climber can untie the figure eight follow-through and proceed to the next station.

(At sites where climbers are to be lowered by belayers on the ground, instructors monitor the climber's upward progress, acknowledge the climber's arrival at the top of the climb, and then supervise the climber and belayer in exchanging the correct signals to commence lowering.)

F. Rappelling

❶ Instructors demonstrate tie-in techniques, verbal signals, belaying, and rappelling methods. Include the right way to hold the rappel rope, the appropriate stance, and the control of the rappel rope to make a slow, steady descent that will not put unnecessary strain on anchors or belayers. Use correct form in all demonstrations, following standard belaying methods.

❷ Before participants begin to rappel, instructors station themselves at the top and bottom of the rappelling route.

❸ All rappellers must be protected by an independent belay line, have the participant secure the belay rope by passing it through the climbing harness and then tying it with a figure eight follow-though backed up with a safety knot. (A participant who is protected by a safety line stays attached to that line until the belay rope has been secured to the harness and the belayer is on belay.)

❹ Guide the participant in positioning the rappel device on the rappel rope and then attaching it to the harness.

❺ Double-check the security of the harness, the belay rope, and the way the rappel rope is set up with the rappel device. Make a quick visual check of the anchoring system. Be sure the rappeller is wearing leather-palmed gloves.

❻ Monitor the exchange of verbal signals between the rappeller and the belayer, insisting that they use the correct signals in the correct order.

❼ Protected by the belay, the rappeller proceeds down the cliff. Instructors observe the entire rappel and are ready to assist in any way necessary.

❽ A rappeller keeps the *guide hand* above the rappel device, relying on that hand only for balance. The *brake hand*, which never leaves the rope, grasps the line and pulls it snugly against the hip and buttock to control the speed of descent.

❾ An instructor greets each participant reaching the end of a rappel, helps free the participant from the belay and rappel ropes, gathers the rappel device, and directs the participant to a safe waiting area.

❿ To minimize the danger from falling rocks or pieces of hardware, waiting participants and other bystanders stay away from the immediate area below rappelling and climbing routes.

G. Closing a Program

Instructors expedite the process of ending a day's activities with the following steps.

❶ See that all participants are accounted for, and that they leave the area with appropriate leadership.

❷ Send participants away with a feeling of accomplishment. Give them a sense of achievement for having tried something that may have been new to them, and for having pushed themselves beyond their expectations.

❸ Take down the ropes, remove any knots, and make an inch-by-inch inspection for signs of damage or wear. Coil or bag ropes for storage.

❹ Remove anchoring systems from anchor points. Inspect all webbing and hardware for signs of damage or excessive wear.

❺ Stow webbing and hardware in tubs, bags, or other storage units in such a way that everything will be easy to find and set up at the beginning of the next program day.

❻ Gather helmets and harnesses, and check them for signs of damage or excessive wear. Fill out the record books tracking the use, history, and condition of each rope, helmet, and harness.

❼ Retire from use any equipment that shows signs of damage or excessive fatigue.

❽ Place climbing/rappelling program equipment in a locked, weatherproof storage facility.

H. Inclement Weather Activities

Inclement conditions may prevent groups from climbing and rappelling. The itineraries of units attending summer camps may not allow them to reschedule the program. Rather than disappointing them, instructors may provide Scouts with a modified version of the climbing/rappelling experience using one or more of the following activities, carried out at a site sheltered from the weather.

1. Expand knot-tying practice to include a wide range of climbers' knots.

2. Demonstrate and discuss equipment climbers use, and give an overview of the history of climbing.

3. Present a video or slide show about climbing. Pick one or tailor it to entertain the age group of the participants.

4. If there is a climbing wall or a bouldering area not affected by precipitation, teach participants the basics of spotting and bouldering—including the use of verbal signals—then guide them as they practice their climbing moves without going higher than shoulder height above the ground.

Chapter 12

Incident Resolution, First Aid, and Emergency Response

Incident Resolution

The philosophy of rescues has changed within the industry. There has been a shift toward "incident resolution" to prevent the old style of physical "hero" rescues. The implementation of good setup practices, proper participant progression, and strong planning and decision making will prevent the need for physical rescues. Pickoff and cutaway rescues are reserved for professional rescue personnel and are not a part of the BSA climbing, rappelling, or COPE programs.

Avoid using the word "victim," and substitute it with "participant," "climber," or "rappeller." Avoid using the word "rescue," and substitute it with "incident resolution," "assist," or "technical response." Many situations requiring a rescue could have been prevented with proper planning.

In the past, most rescues fell in one of two categories:

- Hair, clothing, or something else became stuck in the rappel device.
- A participant was put into a situation which he or she was not ready to attempt.

To help prevent putting participants and rescuers into a potentially risky situation, follow these points:

- Use a dynamic or slingshot belay so that a person can be lowered to the ground if necessary. Using a static belay (in which a participant is self-belayed using webbing or multiline) should be discouraged. If a person slips or falls while using a static belay, the rescue is risky—and it could have been avoided. This is more common in a COPE program. But since many directors and instructors are trained in both, it is worth mentioning here.
- Use a releasable rappel on static rappel lines.
- Properly prepare participants for the activity, both emotionally and physically. Address warm-up, equipment, and clothing preparation.

Order of Resolution

The BSA aquatics program follows an "order of rescue"—reach, throw, row, go—aimed at resolving a rescue situation in the safest, quickest, and easiest manner. The aquatics procedure has been adapted for climbing/rappelling, as well as for Project COPE scenarios, with the goal of allowing a participant to finish the activity with as little intervention as possible.

Most rescue-type situations can be assessed as

- A technical issue, such as a jammed figure-eight descender
- A medical issue, such as an injury to a participant
- An emotional issue, such as a scared climber

Proper planning and preparation would consider the following:

Technical

- All participants are top-rope belayed.
- Proper belay technique has been taught and put into practice.
- A backup belayer is strongly recommended.
- Rappel ropes are set up as releasable in order to easily clear a jammed rappel device.
- Equipment and setup are appropriate for the activity, and proper instruction has been given in its use.

Medical

- Things to consider that may result in medical issues include: bees; loose or slippery rock; poor trail conditions to, from, and at the site; environmental conditions; and food and water.
- Check with the medical officer or review the participant medical forms prior to the activity, and be aware of any special needs.

Emotional

- Assess that the participant is physically, mentally, and emotionally ready for the activity or challenge.
- Is the activity age-appropriate for the participant?
- Are there options within the activity to accommodate the varying needs of participants?
- Has the participant been prepared for the activity with skill progressions?
- Has the proper challenge-by-choice environment been established? (There should not be pressure from parents, peers, leaders, or staff forcing the participant into uncomfortable situations.)

Stay Calm

If a situation develops, stay calm and assess it. You will implement the appropriate course of action following this order of rescue:

C—Communicate with the participant.

A—Assist the participant.

L—Lower the participant.

M—Move to the participant.

E—Evaluate the situation.

R—Rehearse.

Communicate

Communication is used in every scenario. In an emotional situation, a climber/rappeller may be frozen on a rock face, tower, or high-course event. Make eye contact, if possible. Communication with eye contact is more personal and reassuring. Talk to the person in a calm voice.

An emotional concern might be remedied by talking the person through the situation using simple, clear, concise, and reassuring words. Ask the participant how he or she feels and what you can do to help. Remember, BSA activities are "challenge by choice," so the participant plays the key role in deciding what to do next. Participants should never be pressured into continuing against their will.

Assist

Assisting the participant is most often necessary when there is a technical issue. Using a sling, prusik cord, or etrier with a friction knot or an ascending device, the participant may be able to lift his or her weight and clear a jammed device. A releasable rappel could be used here to take the weight off one rope at a time. A pulley system also could help clear a snagged rappel device.

Lower

A dynamic belay is used to simply lower the participant to the ground. A releasable rappel or pulley system can also be used to lower the person to the ground while still on the initial belay.

Move

As a last resort, a staff person might have to climb or rappel to the participant. The rescuer may help the participant verbally while allowing the participant to remedy the problem, or the rescuer might have to offer physical assistance to release a jammed rappel device.

Pickoff and cutaway rescues add additional risk because they remove the participant from the primary belay system. These procedures are reserved for professional rescue personnel and should not be taught, practiced, or performed as part of the BSA climbing/rappelling or COPE program.

Evaluate

After the resolution, debrief the situation with staff members. Were procedures in effect that were overlooked? Would a change in procedure help prevent this situation from happening again?

Rehearse

Once you have evaluated the incident and determined its resolution, you might need to change your procedures. Any changes should be documented and rehearsed by the entire staff so they become familiar with the updated procedures.

Almost all rescues could be avoided with better course design and/or procedures implementation. Planning, smart setups, and proper preparation could have helped prevent a large percentage of rescues.

First-Aid Certification

Every BSA climbing/rappelling activity must have on-site at least one person who holds American Red Cross Standard First Aid certification (a 6½-hour course), or who has completed a course of equivalent length and content from the Red Cross or another nationally recognized organization. The 16-hour Wilderness First Aid Basic course is also recommended. That person should take the lead in treating injury or illness. He or she may draw upon the knowledge of others in the vicinity, involving them in caring for those in need and in ensuring the continued safety of other participants and bystanders.

First-Aid Emergencies

Head Injuries

Anyone who suffers an injury to the head should be taken to a medical facility for evaluation and treatment as soon as possible. Depending on the symptoms, some evacuations are urgent, while others can be delayed.

A ***delayed evacuation*** means the person is taken to a medical facility expeditiously but without the use of an ambulance or helicopter. In this category are patients who fit the following description.

- Have had a relatively trivial injury
- Have not lost consciousness
- Have been unconscious for less than 30 seconds before regaining a full and normal level of alertness
- Have no history of bleeding disorders or the use of medications such as aspirin or blood thinners that might increase the risk of bleeding

Candidates for delayed evacuation must be constantly monitored for any change in symptoms that would indicate the need for urgent evacuation.

Urgent evacuation employing an ambulance, helicopter, or other rapid medical response is mandatory for anyone who has suffered a blow to the head or face that results in one or several of the following symptoms.

- Loss of consciousness for more than two minutes or of responsiveness
- Debilitating headache
- Drowsiness
- Disorientation
- Unusual irritability
- Persistent nausea or vomiting
- Bruising behind and below the ears or around the eyes
- Loss of coordination
- Abnormal vision
- The appearance of clear fluid (possibly cerebrospinal fluid) from the nose and/or ears
- Seizures
- Relapse into unconsciousness

Sprains and Contusions

When a person suffers a sprain or contusion as the result of a fall, it is always proper to use the RICE technique of management: *R*est, *I*mmobilize, *C*old, *E*levate. If pain is severe, enhance resting the limb by using a splint. When a long bone is involved, extend the splint to immobilize the joints above and below the injury. If a joint is injured, apply the splint so that it immobilizes the bones immediately above and below the joint.

Avoid undue manipulation and splint an injured limb as it lies (except when the injury results in angulated deformity of a limb; in that case, gently straighten the limb to reduce the possibility of circulation or nerve damage). Monitor circulation before and after splinting by comparing the pulse in the injured limb with that of an uninjured limb. Checking the capillary refill capacity on the side of an injury furthest from the heart may also prove useful for evaluating circulation.

Spinal Injuries

Someone who falls is in danger of suffering cervical spine injuries. Suspicions should be high if the victim has fallen more than a few feet, is unconscious, or has suffered a blow to the head. Staff trained to do so should immediately assess the airway and provide mechanical stabilization by holding the head and neck to prevent movement. Stabilization should be maintained until either the patient is stabilized in a rigid litter and cervical collar (if the caregiver is trained) or when relieved by qualified medical personnel.

Always have a well-equipped first-aid kit close at hand.

Guard against undue movement of the spine until the possibility of spinal injury has been explored. If such an injury is suspected, do not attempt to move the victim unless there is potential danger at the scene—imminent avalanche, rock fall, etc. Get qualified medical personnel to the site as quickly as possible.

All rock-climbing programs should have a first-aid kit present that matches the training level of the caregiver. It should contain all the supplies necessary to meet the needs of possible injuries. (Cervical collars, litters, and backboards should only be included if staff is trained to use them.) Supplies should include SAM Splints™ to immobilize bone or joint injuries.

A person injured while climbing or rappelling may well have landed on the ground where treatment can begin immediately. If, however, the person is still suspended on the climbing/rappelling face by a rope, quickly assess the situation and devise a workable plan for getting the person down. It may be possible simply to lower the injured person by using the belay rope to which the victim is attached. In cases of more serious injury or if a participant is tangled in the rope in such a way that direct lowering is not an option, it may be appropriate for an instructor to rappel down to the participant and assist in getting the person to safety.

Whatever the situation, remember the first rule of emergency aid—survey the situation before acting, and then proceed in ways that do not create more casualties. If the decision is made for an instructor to rappel down to assist a suspended victim, the instructor's rappel rope must be attached to a secure anchoring system. Setting up a rappel rope for a rescue can be done quickly, but be sure to take the time to do it right. Double-check the security of the anchor, the connections, the instructor's harness, and the way in which the instructor is tied in. Do not allow haste to cause injury to a rescuer.

- Once on the ground, assess the injured person's condition, determine a proper course of action, and carry it out.
- Throughout a rescue, no matter how minor, monitor the other members of the group and be ready to deal with their actions, concerns, and locations. If possible, assign an instructor or group leader to keep

participants and bystanders out of the way of the rescue, to reassure them, and to safeguard their security. Those waiting at the top of a climb may be tempted to approach the edge of a cliff to get a better view; instructors should see to it that they remain in safe locations, that they are tied in to safety lines if that is appropriate, and that they move in an orderly manner to a place of known safety.

- Before resuming climbing or rappelling activities, inspect all belay systems, harness tie-ins, and other equipment. If a serious accident has occurred, cease further activity after managing the emergency response, and arrange for a critical incident stress debriefing session for everyone. Seek out a qualified team to conduct this debriefing session.

Hypothermia

The chilly weather and exposed settings sometimes present during BSA climbing/rappelling activities can set the scene for hypothermia, especially if participants are unprepared. Instructors, directors, group leaders, and program participants should all take responsibility for preventing hypothermia, and for treating it if someone does fall victim.

Preventing Hypothermia

- Dress for warmth. Best of all are layers of clothing that can be adjusted to changing conditions. Rain gear will help people keep dry.
- Eat plenty of food and drink enough water. For a day of climbing and rappelling, that may mean having a good meal before arriving at the program area, and then bringing along filled water bottles, a lunch, and nutritious snacks.
- Keep busy. Muscular activity generates heat. Participants allowed to stand or sit idle for long periods are more likely to suffer both hypothermia and boredom. Belayers and instructors should also be on guard against chilling caused by their own low levels of physical activity.
- If weather, energy reserves, or participant preparation are such that hypothermia is a perceivable danger, instructors and/or group leaders must take steps to correct the situation immediately, most often by calling a halt to activities and moving everyone to a more appropriate setting.
- On overnight outings, always change clothes before going to bed and put on dry clothes for sleeping. Clothing becomes damp from body moisture during the day and, if worn to bed, will lower body temperature in sleeping bags.

Treating Hypothermia

- Place the victim out of the wind in the best shelter possible (a building, a warm vehicle, a tent, etc.). Insulate the victim from the ground with sleeping pads, clothing, or other gear.
- Replace wet clothing with dry garments. Wrap the victim in sleeping bags or blankets.
- If the victim is conscious and able to swallow, give warm drinks, especially those high in carbohydrates and sugar. Do not give the person caffeine or alcohol.
- Get the victim under the care of a physician.
- Throughout an emergency involving hypothermia, monitor all group members to prevent others from becoming victims, too.

(For more on preventing and treating hypothermia and other first-aid emergencies, see the *Boy Scout Handbook* or *First Aid* merit badge pamphlet.)

Dehydration

Water is essential for nearly every bodily function, including digestion, respiration, brain activity, producing heat, and staying cool. Moisture is lost through breathing, sweating, digestion, and urination. Losing more water than is taken in can affect people in different ways, including

- Tiredness
- Headache and body aches
- Confusion

Heat exhaustion, heatstroke, and hypothermia may all be caused in part by dehydration.

Climbers protect themselves from dehydration by drinking plenty of fluids. That's easy to do on hot summer days when they're thirsty. It is just as important in cool weather when they might not feel like drinking. They should drink enough so that their urine stays clear.

Heat Emergencies

In hot weather, a person's body adjusts to maintain comfort. Climbers can help their bodies do that by drinking plenty of fluids and resting in the shade when they feel too warm. During sieges of hot weather, it may be wise to conduct climbing/rappelling programs in the early morning and evening hours instead of the middle of the day when the temperature is highest. Participants should wear light-colored clothing and, when they aren't wearing climbing helmets, shade their heads with hats.

Heat Exhaustion

Heat exhaustion occurs when the body's cooling system becomes overworked. Think of it as an air conditioner running wild. Heat exhaustion may affect a person outdoors or in a hot room. Symptoms can include:

- Skin pale and clammy from heavy sweating
- Nausea and tiredness
- Dizziness and fainting
- Headache, muscle cramps, and weakness

First Aid for Heat Exhaustion

❶ Have the victim lie in a cool, shady place with the feet raised. Remove excess clothing.

❷ Cool the victim's body by applying cool, wet cloths and by fanning.

❸ Let a victim who is fully alert sip cool water or a sports drink.

Recovery should be rapid. If symptoms persist, call for medical help.

Heatstroke

Heatstroke happens when a victim's cooling system is so overworked that it stops functioning. In simple terms, the body's air conditioner breaks. The victim's temperature soars to life-threatening extremes. Symptoms of heatstroke may include:

- Skin very hot
- Skin red and either dry or damp with sweat
- Pulse rapid and quick; breathing noisy
- Confusion and irritability; victim may fight against being treated
- Unconsciousness

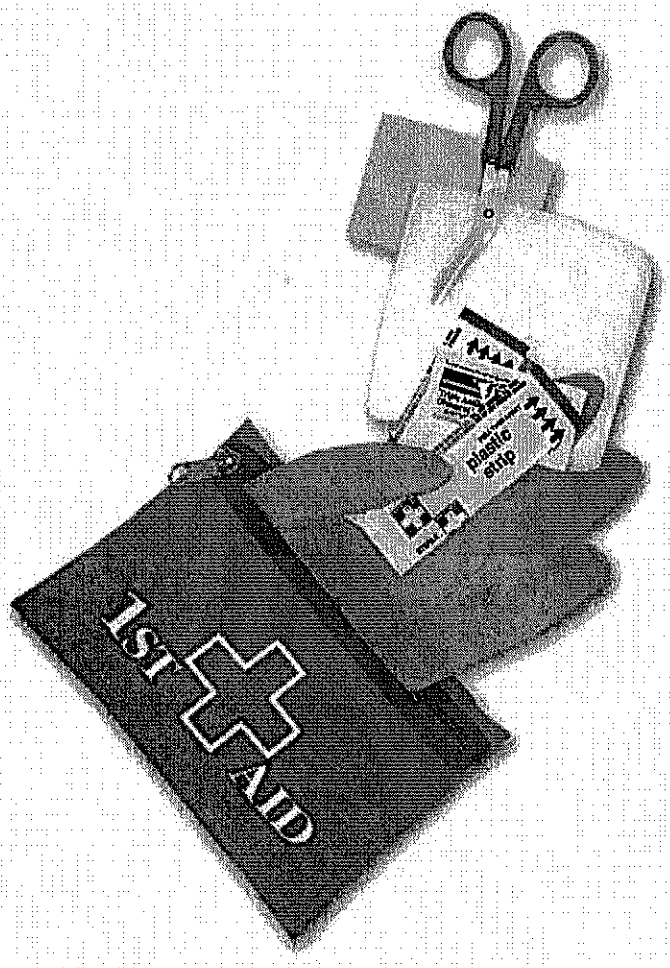
First Aid for Heatstroke
The victim is in danger of dying, so call for medical assistance immediately. Then work quickly to cool the victim.

❶ Move the person to a cool, shady spot.

❷ Lower body temperature any way you can. Remove outer clothing and sponge the victim with cold water. Cover the victim with wet towels, wet clothing, or whatever else is handy, and enhance the cooling effect by fanning. Place the person in a stream, in a bathtub filled with cold water, or in front of an air conditioner running full blast in a house or car. Use combinations of all available treatments.

❸ Keep the victim lying down and comfortable with head and shoulders slightly raised.

❹ Monitor closely until help arrives. Body temperature may go up again. The victim may vomit, and may require rescue breathing.



Abrasions, Cuts, and Scratches
For climbers indoors or outdoors, short falls can lead to minor bruises or skinned knuckles and knees. Wash abrasions and minor cuts with soap and water. Applying antiseptic may help prevent infection. Keep the wound clean with an adhesive bandage. On camping trips, clean and rebandage small wounds daily.

Rope Burns
Rope burns, or friction burns, can occur when climbers allow rope to slide too quickly through their hands or when any part of the body comes in contact with a fast-moving rope. A rope burn is characterized by raw, red skin and sometimes blistering. The best protection against rope burns is, of course, to wear climbing gloves, but if a burn does occur, clean the area with mild soap and water to help prevent infection.

Emergency Response Plan

BSA climbing directors and instructors should prepare an emergency response plan for each site that will be used for climbing, rappelling, or bouldering activities. The plan should include the following information.

1. Location of the nearest telephone: _____
2. Telephone numbers for
   - Local emergency response system: *(usually 911)*
   - Nearest hospital: _____
   - Nearest police/sheriff's office: _____
   - BSA local council Scout executive: _____
3. Directions and perhaps a map detailing how to reach the nearest clinic, hospital, or life flight service.

Summoning Aid

Put this in your first-aid kit for ready reference.

Reporting Aid

When calling for outside assistance, either by dialing 911 or by sending responsible individuals to summon help, inform authorities of the following.

- ☐ Identify the exact location and community or coordinates where the incident occurred, and determine how to direct emergency units to the accident site, including mileage from a known location.
- ☐ Give a description of the injured parties, including name, age, height, weight, and vital signs if they can be easily determined.
- ☐ Explain that there has been an accident and that you need help with a rescue.
- ☐ Describe what happened.
- ☐ Describe the height of a fall.
- ☐ Tell how many people need help and give a brief summary of their situations.
- ☐ Give vital signs (body temperature, pulse rate, respiration rate, blood pressure if known).
- ☐ Describe responsiveness and sensation to touch. Do not move a person who has fallen (wait for emergency medical service personnel).
- ☐ Explain what is being done for the victim(s).
- ☐ Indicate whether an ambulance is needed.
- ☐ Tell who is presently with the injured parties and what you know of their general level of first aid and rescue training.
- ☐ If you have called in the report, don't hang up until help arrives or those you have called give you other instructions. Be sure to give a call-back phone number when you do hang up.

What to Do If a Climbing/Rappelling Accident Results in an Injury

- ☐ Make certain no one else is in danger.
- ☐ Administer first aid. Treat for shock.
- ☐ Assess the situation and, depending on the seriousness of the injury, do one of the following:
  - ☐ Call for assistance (police, fire department, rescue team, etc.).
  - ☐ Arrange for safe transport of the injured to a local medical facility or the participant's home.
  - ☐ Have the injured person sit out the remainder of the day's activities and return home with the group.
  - ☐ Allow the person to resume participation in climbing/rappelling activities.
- ☐ Keep an accurate log of an injured participant's condition, starting at the time of the accident. Include pulse, respiration rate, skin color, and level of consciousness, and note any changes in the participant's status.
- ☐ Write down an accurate record of the treatment given to an injured person and the overall handling of the incident. Get names, addresses, and phone numbers of eyewitnesses. As soon as it is appropriate, ask each witness independently to write down his or her account of the event.
- ☐ If injuries were serious, contact your local council Scout executive.

What to Do If a Climbing/Rappelling Accident Results in a Fatality

- ☐ Ensure the safety of the rest of the group. Do not allow the stress of the situation to compound the emergency.
- ☐ Do not disturb the body. Investigating authorities will determine when and how it will be moved.
- ☐ Do not disturb the area immediately around the body. Legal authorities will make a careful investigation of the site. Leave all ropes, anchors, and hardware as they were at the time of the incident.
- ☐ Notify the council Scout executive, who will, in turn, contact other appropriate authorities and report what has happened.
- ☐ Make an accurate written record of the incident. Get names, addresses, and phone numbers of eyewitnesses. Have every willing witness immediately write a longhand narrative report describing the specifics of the incident. Be sure each person signs and dates the report.

Online Reporting Procedure for Injury or Illness

Complete an Incident Report inside the Resources tab at MyBSA. Effective in 2010, all injuries, illnesses, and incidents requiring the intervention of a medical provider beyond basic Scout-rendered first aid shall be reported using this system. Camps with limited or no Web access will need to capture the information using the reporting folder or forms and establish a method to enter the incidents within five working days. Near misses in Project COPE, climbing/rappelling programs, or in pilot programs shall also be reported using this method. If an incident involves a fatality or multiple serious injuries, please follow the crisis communication plan included in the reporting folder.

What to Do in Any Accident or Emergency Situation

- ☐ Do not contact news media.
- ☐ Do not make any statements to news media. Refer all inquiries for comment to the local council Scout executive.

AFTER AN EMERGENCY

At the conclusion of an incident resolution or the treatment of an injured person, it may be wise to discuss the events with the other participants and allow them to ask questions and share their feelings. Arrange for a post-traumatic debriefing by a capable provider for the benefit of youths and adults who were present during any phase.

Instructors and directors who have witnessed close calls or who have been involved in responsive efforts, especially if the injuries were severe or the scene was traumatic, may benefit from further discussions with qualified adults who can help them understand and deal with the emotions they are experiencing.

Soon after the incident, the climbing director, instructors, and other appropriate personnel of the camp, district, council, or council high-adventure base should review the events, determine the cause of the accident, and develop strategies for preventing a recurrence.

Emergency Response Equipment

Site-specific equipment for possible course emergencies must be available at the climbing site. The type of equipment will be decided by the on-site director or lead instructor. Consulting the local camp or council medical officer can help to determine what specific equipment might be necessary.

A climbing area should have on hand enough rope and hardware to set up a separate system to allow a director or instructor to rappel down to aid a participant who cannot be easily and safely lowered to the ground. The backup rope and hardware should be located at the top of the face near the anchors. In many cases, it will be possible to secure the backup rope to an anchor ahead of time, and then stow the rope so that it is out of the way but immediately available in an emergency.

Climbing instructors should be trained and practice responding quickly to emergencies.

A typical rescue bag might include:

- Rope (When used to belay two people, a rope must be rated for a two-person load.)
- Several slings
- Extra webbing
- Prusik cords
- Belay/rappel device
- Shears
- Locking carabiners
- Prusik-minding pulleys
- Leather gloves

CLIMBING INSTRUCTORS SHOULD LEAVE COMPLICATED RESCUES TO PROFESSIONALS OR BECOME TRAINED IN HIGH-ANGLE RESCUE TECHNIQUES. EVERY INSTRUCTOR SHOULD BE AWARE OF PERSONAL LIMITATIONS.

Emergency/Technical Response Practice

No participant/instructor should be put in a practice scenario that places them in danger of becoming an emergency situation. Practicing these techniques should take place a few feet off the ground. Many accidents have occurred throughout the world when instructors attempted to practice incident resolutions that went beyond their level of training.

Using one or more volunteer "victims," mock assist scenarios can introduce instructors to a variety of incidents and problem-solving situations. Here are some pointers for conducting successful mock assists.

- Encourage instructors to consider a variety of solutions such as talking a participant down, using a belay to lower a participant to safety, and going to the participant.
- Take into account all the resources at hand for use in an assist—for example, rope and hardware for a second belay system, and a pulley system, or an extension ladder. Other resources may include the option of calling in a fire department or search-and-rescue unit.
- In practice as in real emergencies, ensure the safety of everyone involved. Stop a practice session if you observe unsafe procedures. Check the "victims" often to be sure they are comfortable and not in any danger, especially if they are suspended on the climbing face.
- Be as realistic as possible, including "victim" behavior.

Evaluate the practice for the following:

- Was it effective? Was the person safely returned to the ground? Was appropriate first aid provided in the correct sequence?
- Was it safe? Did the "rescuers" monitor their own security and that of others. Was the technique appropriate for the incident? Could there have been an easier technique?
- Was the assistance prompt? Without jeopardizing safety, how could it have been done more quickly?
- Was it sufficiently simple and well-considered?
- Was it organized? Did everyone involved, including the "participant," know what was going to happen?
- What could have been done to prevent the need for a rescue?

Finally, instructors should give serious consideration to what they will do differently the next time they are confronted with a mock or real emergency.

Chapter 13

Staffing and Instructor Training

The success and safety of a BSA climbing/rappelling program is directly related to the quality of the people leading it. The staff for the climbing/rappelling program of a BSA council, district, or council high-adventure base is, at a minimum, made up of a currently trained BSA climbing director or lead instructor and several currently trained BSA climbing instructors. Staff members may be either employees or volunteers of the BSA. The roster may also include one or more instructors-in-training (IITs).

BSA Climbing Director

The director is the primary authority in the climbing/rappelling program of a district, council, or council high-adventure base. He or she oversees the selection of program staff, the training of instructors, the selection of program areas, and the safe operation of activities involving climbing/rappelling. Ideally, the climbing/rappelling committee of a council is chaired by a climbing director.

A BSA climbing director must hold a current certificate of completion of BSA climbing/rappelling training. He or she should have been an active participant in a BSA climbing/rappelling program at least once within the past 12 months. Directors who have not been active during the previous year should serve under a currently trained BSA climbing director to refresh their expertise and to be reactivated.

The qualities expected of a BSA climbing director include, but are not limited to, the following:

- Minimum age 21
- Currently registered member of the Boy Scouts of America
- Current BSA Annual Health and Medical Record, No. 34605, and a careful review by a licensed health-care practitioner of limitations that may preclude full participation in this activity.
- Good judgment
- Ability to teach and to lead
- Ability to work with youth
- Appropriate first-aid and CPR training as required by current Project COPE and Climbing/Rappelling Standards (No. 430-008)

- Awareness of safety procedures and the risks inherent in climbing/rappelling activities
- Proficiency in instructing and performing standard climbing/rappelling rescue techniques
- Working knowledge of the material and concepts in *Topping Out: A BSA Climbing/Rappelling Manual*
- Understanding of BSA Climbing merit badge requirements
- Knowledge of the climbing/rappelling area where activities will occur, or access to local authorities able to provide all necessary background information
- Working knowledge of the BSA's "challenge by choice"
- Successful completion of National Camping School Climbing section training for climbing directors

(Climbing directors, in turn, provide a three-day training course to qualify instructors to lead climbing and rappelling activities.)

BSA Climbing Instructor

Instructors of BSA climbing/rappelling activities are capable, safety-conscious teachers. They are the on-site personnel (either staff or volunteer leaders) who instruct and manage the climbing/rappelling activities of a district, council, or council high-adventure base. They must exercise good judgment and dependability, and relate well to youth and to adults. By fulfilling the following requirements under the supervision of a currently trained climbing director, candidates may receive a certificate of completion of training good for two years as climbing instructors. They must obtain a certificate of completion of training every two years. The qualities expected of a BSA climbing instructor include, but are not limited to, the following:

- Minimum age 18 (But a *lead* instructor must be at least age 21.)
- Currently registered member of the Boy Scouts of America
- Appropriate first-aid and CPR training as required by current Project COPE and Climbing/Rappelling Standards (No. 430-008)
- Current BSA Annual Health and Medical Record, No. 34605
- Good judgment
- Ability to work with youth
- Proficiency in the techniques of climbing, rappelling, belaying, and spotting
- Working knowledge of *Topping Out: A BSA Climbing/Rappelling Manual*
- Understanding of BSA Climbing merit badge requirements
- Completion of three-day climbing/rappelling staff training

BSA Climbing Instructor-in-Training (IIT)

BSA climbing instructors-in-training gain valuable knowledge and experience as they assist instructors in the many responsibilities of running climbing and rappelling activities. Whenever they assist participants engaged in any events at a climbing/rappelling area, instructors-in-training must be under the direct supervision of a trained BSA climbing director or lead instructor who is at least 21 years of age.

The qualifications expected of a BSA climbing instructor-in-training include, but are not limited to, the following:

- Minimum age 16
- Currently registered member of the Boy Scouts of America
- Current BSA Annual Health and Medical Record, No. 34605
- Good judgment
- High maturity level
- Ability to work with youth
- Trained in climbing, rappelling, belaying, and spotting (may have completed the three-day instructor training course)

Additional Training

To prepare themselves for their responsibilities, climbing directors and instructors are encouraged to receive training from a recognized college or university climbing program, or from a nationally recognized organization such as the following (see the resources section for addresses, etc):

- American Mountain Guide Association (AMGA)
- Eastern Mountain Sports (EMS)
- The Mountaineers
- National Outdoor Leadership School (NOLS)
- Outward Bound (OB)
- Wilderness Education Association (WEA)
- National Speleological Society (NSS)

Directors and instructors are also encouraged to complete an anchoring course of several days' duration sponsored by a nationally recognized organization such as those listed above.

Staff Training

The National Standards for Cub Scout/Boy Scout Resident Camps (No. 430-111, current year) specifies that when a climbing/rappelling program is offered through a camp, climbing instructors must complete a minimum of three days of specialized training. Three days is the minimum length of training for a few climbing instructors; larger groups will require a longer period, depending upon their climbing knowledge and skills. This training is usually incorporated into the camp's normal summer camp training, with a specific climbing/rappelling schedule developed around the general needs of the camp. Hold the specialized training at the climbing/rappelling sites the camp will use during its summer operations.

If BSA climbing/rappelling activities will occur at other areas within a district, council, or council high-adventure base, or during other times of the year, conduct similar intensive training for staff members who will be involved as BSA climbing instructors during those events.

In a program of such high excitement, the director must avoid the problems that can arise if instructors on the climbing staff consider themselves to be somehow superior to other members of the climbing/rappelling camp staff. To defuse this behavior, the director might coordinate with the camp director to develop opportunities during training for all camp staff members to participate in climbing and rappelling activities. That can foster higher morale throughout the entire camp staff and a greater sense of teamwork.

Each climbing instructor must complete all portions of the training to ensure that he or she has a full understanding of the standards demanded for the safe operation of a BSA climbing/rappelling program. Take care when training the climbing staff to avoid any shortcuts that could jeopardize anyone's comprehension of, or respect for, safety guidelines and procedures.

Learning Objectives

By the end of the three-day training, each instructor should be able to

- Explain the purpose of a climbing/rappelling program and discuss how it relates to the aims and methods of Scouting and the personal development of participants.
- Describe the responsibilities that a BSA climbing instructor must assume before, during, and after the use of a climbing/rappelling site.
- Demonstrate a mastery of belaying, climbing, rappelling, spotting, and any other activities the instructor will teach and oversee.
- Identify each piece of equipment used in a BSA climbing/rappelling program. Show how each piece is inspected, used, inventoried, and stored. Explain the importance of keeping records of the use of each rope and piece of gear, show how that recording is done, and discuss when and how an item of gear is to be retired.
- Tie the knots and hitches to be used during a BSA climbing/rappelling program. If commercial seat harnesses will be used during the program, show how to match or adjust them to fit participants of various sizes. If tied harnesses will be used (tied-seat or knotted leg-loop), show how they are to be tied.
- Demonstrate an understanding of anchor points and anchoring systems, and their proper uses.
- Prepare the climbing/rappelling area for participant activities.
- Discuss safety and first aid.
- Demonstrate rescue procedures used for climbing and rappelling.
- Explain the use of the buddy system during BSA climbing/rappelling activities.
- Work well as a team member with other members of the BSA climbing staff.
- Lead a group through a climbing/rappelling experience.
- Evaluate one's own performance as an instructor on the course, and make needed corrections.

Training Schedule for BSA Climbing Instructors

A BSA climbing/rappelling training program for instructors, lead instructors, and instructors-in-training is organized and led by a BSA climbing director using *Topping Out: A BSA Climbing/Rappelling Manual* as the primary resource. The director should make arrangements to have a Scouting group on-site for day three of training so that instructor candidates can teach and be evaluated under realistic program conditions.

The schedule that follows may be altered to fit specific situations facing each district or council, but every component must be covered during a three-day training program.

Learning by Doing

To the greatest degree possible, staff training should be a hands-on experience. Plan presentations so that instructors learn by doing—that is, they actively engage in the subjects they are learning rather than sit passively, listening to a lecture. Instructor candidates will have more fun, teaching will be more effective, and directors will find their own involvement more satisfying.

Day One

❶ Welcome participants with team-building activities and present the philosophy of BSA climbing/rappelling.

a. This will be the first opportunity for the climbing staff to work together as a team within the larger camp staff. Depending on how well staff members know one another, the director can kick off the training with some get-acquainted activities that encourage cooperation and problem solving. (For ideas, see the *Project COPE* manual, No. 34371.)

b. Review the council, district, or council high-adventure base philosophy of climbing/rappelling activities. Discuss the purpose of these activities in the overall summer camp program.

c. Define and discuss the following:

- **Fear.** Stress that there is nothing wrong with being afraid. A goal of BSA climbing/rappelling activities is to help participants recognize what they fear, then encourage them to deal with those fears by understanding them and proceeding in spite of them. Count every bit of progress by a participant in a fearful situation as a success.
- **Group support.** Climbing instructors help participants understand the importance of supporting one another during climbing/rappelling activities. Applaud every achievement: "Way to go!" "Look how far you got!" "Good effort!" Do not tolerate negative comments and put-downs, and make it understood that all participants who try their best are successes.
- **Buddy system.** Explain that participants taking part in BSA climbing/rappelling activities use the buddy system to help ensure their safety and enhance their experience. Buddies offer encouragement and assistance to each other; double-check their partner's harness, knots, and belay or rappel devices; and continually watch out for their buddy's best interest.
- **Scout Oath and Scout Law.** Use the Scout Oath and Scout Law as the basis for establishing an appropriate environment for participation in BSA climbing/rappelling activities. Encourage participants to approach activities with the idea of doing their best, of being helpful, friendly, kind, cheerful, and brave.

- **Leave No Trace.** Explore the principles of Leave No Trace as they relate to climbing/rappelling sites and activities. Discuss the many ways that instructors can practice Leave No Trace methods as they set up and run each day's program, and how they can impart to Scouts an enthusiasm for adopting Leave No Trace methods in their own experiences. Leave No Trace guidelines are appropriate for sites on BSA property and for those on public and private lands.

❷ Discuss the responsibilities of BSA climbing instructors.

a. Climbing instructors are responsible for conducting safe, rewarding experiences for all participants.

b. Instructors maintain and follow safe procedures. They must be on guard against any unsafe situation and take corrective action. They can never assume that someone else will take care of it.

c. Instructors guide participants toward realizing how climbing and rappelling experiences can help them deal with problems, build self-esteem, and foster group spirit. Instructors do this in part by being good role models.

d. Instructors should be conscious of their communication skills and work to improve the ways in which they present information to participants.

e. Instructors must know how to set up and take down anchoring systems, belay ropes, and other elements required for climbing and rappelling activities. They must possess the ability to inspect the equipment and the site before each day's activities, log equipment use, remove any equipment that is of questionable quality, monitor environmental conditions, and report problems or concerns to the director.

f. Instructors must be prepared to assist in cases of accident and/or injury.

g. Instructors must know what their specific duties are each day. That ability comes from their overall understanding of the program, from the director's care in making assignments, and from each instructor's initiative.

h. Instructors must be aware of risks inherent in climbing and rappelling, and understand ways to minimize those risks.

❸ Review methods to be used for determining participant health conditions.

a. Any participant taking part in a BSA climbing/rappelling activity must hold at least a current BSA Annual Health and Medical Record (a health history form completed by a parent or legal guardian and a licensed health-care practitioner). Reviewing the medical record should alert directors and instructors to health matters that may require adjusting the level of a person's participation in the day's activities.

b. In addition, the current state of health of each person is important to his or her enjoyment and safety while climbing and rappelling. A participant who is not feeling well or has a condition that may hinder performance should be cautioned to continue only to the degree that the individual feels capable of attempting.

c. In hopes of being allowed to climb and rappel, participants with real conditions of concern may sometimes argue that there is nothing wrong with them. On the other hand, healthy but fearful participants may feign illness or injury. Whenever instructors have questions about a participant's fitness or the truthfulness with which that person has described health conditions, they should closely monitor the participant's performance and be ready to adjust the level of activity to keep everyone within safe and comfortable parameters.

ALL TECHNIQUES TAUGHT DURING INSTRUCTOR TRAINING SHOULD CONFORM WITH METHODS AND PRINCIPLES DESCRIBED IN THE BSA's *TOPPING OUT* MANUAL.

❹ Teach instructor candidates how to evaluate the climbing/rappelling site they will be using. Review environmental concerns, perhaps with the help of a local authority familiar with the area.

❺ Review equipment that may be used at the climbing/rappelling site.

a. Discuss and examine the first-aid kit and any other emergency gear (litters, neck braces, etc.) associated with the climbing/rappelling site. Go over the proper uses of all first-aid and rescue items, and the procedures for dealing with injuries and illnesses common to climbing/rappelling activities. Explain the emergency response plan and provide each instructor with a written copy.

b. Explain the use and care of each piece of equipment including rope, webbing, carabiners, rappel devices, helmets, gloves, harnesses, belay devices, and proper clothing.

c. Demonstrate proper techniques for inspecting equipment to be used while opening and closing climbing and rappelling activities, including maintaining records of use.

d. Specify the kinds of rope approved for use at BSA climbing/rappelling sites. Assist instructor candidates in learning how rope is identified, transported to and from activity sites, measured, logged, and stored. Where appropriate, show how rope is cut and retired. Provide candidates with segments of damaged rope so that they will know what to look for when inspecting rope.

e. Demonstrate correct storage of all climbing and rappelling equipment.

f. Review the knots used in climbing and rappelling, including situations when each knot should be used. Assess each instructor candidate's ability to tie the knots that should be learned. Note where skills are weak, help individuals correct any mistakes being made, and encourage them to practice on their own until they have an absolute mastery of the required knots.

g. Review coiling ropes and stowing ropes in bags. Allow individuals time to try various methods.

h. Do an inventory of the equipment to be used for upcoming climbing and rappelling activities. Note any recommendations for repairing or replacing any items.

Day Two

The second day of training takes place at the climbing/rappelling site. Instructor candidates should report to the site properly dressed for climbing and rappelling, and with food, water, and any other personal supplies they will need for the duration of the day's events.

❶ Ask instructor candidates to remove rings, jewelry, watches, bulky items from pockets, and anything else that might catch on equipment or cause injury. Have a system in place to store these personal belongings, and inform instructors how they are to use and secure the storage system while participants are busy climbing and rappelling. Provide elastic bands for those who need to secure long hair or loose clothing that could otherwise tangle in a belay or rappel system.

❷ Teach and practice several warm-up and stretching exercises, and discuss with participants the importance of warming-up and stretching before they begin climbing and rappelling activities.

❸ Explain the principles of spotting and when it must be used. Engage the instructor candidates in several spotting activities to highlight the importance of proper technique when participants who are not belayed are climbing no more than 6 feet above the ground.

❹ Discuss the principles of anchoring systems. Demonstrate the various kinds of anchor points and anchoring systems, pointing out the strengths and weaknesses of each.

❺ With the director's guidance, have each instructor candidate set up the anchoring systems that will be used at the climbing/rappelling site. Safety procedures may include using a safety line to protect anyone approaching the edge of a cliff.

❻ Demonstrate the principles of belaying and the signals to be used. Allow each individual to act as a belayer for top-rope climbing and as a belayer for rappellers. (At sites where belaying will be done both from the ground and from the top of a route, have each person practice belay techniques from both locations.)

❼ Review steps for conducting rescues of climbers or rappellers. Set up a mock emergency and engage instructor candidates in the rescue of a person acting as an injured rappeller. Include the steps for securing the belay rope so that a belayer can be released from the system.

❽ Define and explain the common classifications of climbing difficulty. Demonstrate various climbing techniques and holds, and help instructor candidates refine their ability to explain climbing classifications and methods to participants.

❾ Set up a rappel system and demonstrate correct rappelling technique. Monitor and evaluate individuals as they rappel and help them correct any flaws in their technique.

❿ Conclude day two by reviewing techniques and terminology used up to this point during training.

Day Three

The training on day three is built around a group of Scouts or other participants taking part in a typical BSA climbing/rappelling experience. Activities should be set up and run by instructor candidates who are being trained to oversee similar activities in the course of their upcoming duties.

Everything that occurs during the third day of training takes place under the careful watch of a BSA climbing director. Instructor candidates should do the following:

❶ Ensure that the emergency response plan is available and understood by all instructors, and that the first-aid kit and any other emergency gear is on hand.

❷ Prepare the climbing/rappelling site for the day's activities.

a. Perform opening inspections of the site and of equipment to be used in the day's activities.

b. Set up the anchoring systems for the day's program.

❸ Plan and carry out the day's climbing and rappelling activities.

a. Demonstrate climbing knots and rope procedures to participants.

b. Instruct participants in the proper techniques for spotting, belaying, climbing, and rappelling, and supervise them as they take part in any or all of these activities.

❹ Assist group members as they evaluate their experience.

❺ Close the program site for the day. Perform closing inspections of the site and of equipment used in the day's activities.

At the end of day-three activities, the director should lead instructor candidates in self-evaluation and then provide personal insight regarding each instructor's performance, strengths, and ways to address areas in need of improvement.

The final phase of training for BSA climbing instructors is made up of practical testing of skills covered during the first three days, including those involving knots, equipment, anchors, and techniques. The BSA climbing director should conduct the testing in a relaxed environment, using the opportunity to continue staff development and skills assessment.

Review ways in which the staff members of a climbing/rappelling program can work together to enhance the experience and safety of participants. Point out specific instances from day three when staff cooperation was evident. If appropriate, encourage a discussion of any issues that may be preventing instructors from taking full advantage of their various talents.

Discuss some of the challenges the instructors may face in the near future, including difficult group leaders, groups with participants who have various levels of skill, and groups with unreasonable expectations.

It is often appropriate to close the training with a completion ceremony to recognize the achievement of those who have gone through the training and are now BSA climbing instructors or instructors-in-training.

Resources

CHALLENGE COURSE AND CLIMBING/RAPPELLING HEALTH HISTORY AND CONSENT FORM ADULT OR CHILD

You are about to take part in a challenge ("ropes") course experience and or climbing/rappelling ("activity") offered through the _____ Council BSA ("local council") on _____ (date).

While participating in the activity you will undertake a wide variety of physical and mental challenges that are comparable to activities with which you may be more familiar. Much of the time, you will be engaged in activity of "moderate exertion," which is comparable to normal walking, golfing on foot, raking leaves, calisthenics, or slow dancing. For short periods of time, you will be engaged in activity of "vigorous exertion," which is comparable to fast walking, slow jogging, heavy gardening, or shoveling snow.

If any of the above activities are difficult for you, discuss your participation in the activity with your physician. If these are activities in which you regularly engage without difficulty, you should be fit for participation in the program.

Following are specific medical conditions about which participants should always seek the advice of a physician before participating in the activity:

- Pregnancy (climbing harness can injure uterus)
- Kidney or liver transplant (climbing harness can injure transplanted organ)
- Healing fracture or joint injury (should be cleared by treating physician)
- Recent surgery (should be cleared by treating physician)
- Down syndrome (should have x-ray check for neck instability, as per recommendation of the Special Olympics)

If you or your physician has any questions about the physical requirements of the activity, feel free to contact the local council.

HEALTH HISTORY

Name:	First	Middle	Last		
Telephone:	Home		Work		
Personal physician	Name		Telephone:		
In case of emergency, please contact:	Name		Telephone:		
Special dietary considerations:					
List known allergies:					
List required medications:					
If you are allergic to insect stings, do you have an insect sting kit (e.g., EpiPen)?					
Do you wear contact lenses?		Are you pregnant?			
Have you had or do you now have (circle if yes):		Heart attack	Diabetes	Asthma	
Angina	Epilepsy	Chest pains	Drug reactions	High blood pressure	Heart murmur
If you answered "yes" to any of the above, explain and include date:					
Do you have any other medical conditions that we should be aware of?					

Hold Harmless Agreement

I understand that participation in the activity involves a certain degree of risk that could result in injury or death. In consideration of the benefits to be derived, after carefully considering the risk involved, and in view of the fact that the Boy Scouts of America is an organization in which membership is voluntary, I have carefully considered the risk involved and have given consent for myself (or my son or daughter) to participate in the activity, and waive all claims I or we may have against the Boy Scouts of America, the local council, the activity coordinators, and all employees, volunteers, related parties, or other organizations associated with the activity.

I am not under the influence of any chemical substance, including alcohol. Understanding that any physical activity involves a risk of injury, I understand that my participation in the activity is entirely voluntary. I release the Boy Scouts of America, the local council, the activity coordinators, and all employees, volunteers, related parties, or other organizations associated with the activity from any and all claims or liability arising out of this participation. This release does not, however, apply to any harm caused by negligence or willful misconduct of the local council or its employees.

In case of emergency involving my child, I understand every effort will be made to contact me. In the event I cannot be reached, I hereby give my permission to the physician selected by the adult leader in charge to secure proper treatment, including hospitalization, anesthesia, surgery, or injections of medication for my child.

Participant's signature* _____ Date _____

*If the participant is under age 18, his or her parent or guardian must also sign below:

Parent's or guardian's signature _____ Date _____

BOY SCOUTS OF AMERICA

National Office
1325 West Walnut Hill Lane
P.O. Box 152079, Irving, Texas 75015-2079
972-580-2000

To: Scout Executives October 1, 2008

From: Mark L. Dama,
Director, Insurance and Risk Management

SUBJECT: NON-SCOUT USE OF SCOUT FACILITIES

Many councils receive requests from non-Scouters or outside organizations to use council facilities such as Scout camps. The Risk Management Service has developed a procedure and letter of agreement which includes a release and indemnity/hold-harmless agreement for use by outside organizations. The agreement can be printed by accessing MyBSA and then clicking on Resources. Click on the Risk Management Notebook and then open up tab 23.

If an individual or organization comes to you wanting to use your facilities, you should require this letter of agreement, which describes the duties and responsibilities of each party. The outside individual/group must provide the council with a certificate of insurance evidencing coverage in effect (including contractual liability) for this event. This certificate of insurance must state that the limits of liability are at least $2 million combined single limit.

NON-SCOUTING RELEASE AND INDEMNITY/HOLD-HARMLESS AGREEMENT

I understand that use of facilities on _____ owned by _____ Council, BSA, involves a certain degree of risk that could result in injury or death. In consideration of the benefits to be derived, after carefully considering the risk involved, and in view of the fact that the Boy Scouts of America is a not-for-profit organization:

RELEASE AND INDEMNIFICATION

I hereby release and waive any and all claims that I may have against Boy Scouts of America, _____ Council, BSA and Scouting's chartered organization and any of their affiliates, agents, servants, employees, officers, directors and volunteers.

_____ shall indemnify, hold free and harmless, assume liability for, and defend the Boy Scouts of America, _____ Council, or Scouting's chartered organizations, and any of their affiliates, agents, servants, employees, officers, volunteers, and directors from any and all costs and expenses, including but not limited to, attorneys' fees, reasonable investigative and discovery costs, court costs, and all other sums that the Boy Scouts of America, _____ Council, or Scouting's chartered organizations, and any of their affiliates, agents, servants, employees, officers, volunteers, and directors incur as a result of any demand for claim or assertion of liability under any municipal, state or federal law or cause of action, including any action under the Americans with Disabilities Act, arising or alleged to have arisen out of any act or omission of, or any use of real or personal property belonging to, the Boy Scouts of America, _____ Council, or Scouting's chartered organizations, and any of their affiliates, agents, servants, employees, officers, volunteers, and directors.

Property and period to be used: _____

_____

Organization: _____

_____ _____ _____

Signature Telephone Number Date

If signatory is less than 18 years of age, this must also be signed by a parent or guardian.

_____ _____ _____

Parent's Signature Telephone Number Date

_____

Signature

_____

Telephone Number

_____

Date

Sample LETTER OF AGREEMENT FOR CAMP USE

This letter of agreement is for the purpose of establishing the use of Camp _____ by _____ for the purpose of _____. This is a Boy Scout Camp and is used first and foremost by members of Boy Scouts of America.

1. _____ is to use the _____ Scout Reservation from _____ beginning at _____AM/PM to _____ at _____AM/PM.

2. Agrees to provide the _____ Council with the following documents by _____.

   a). A certificate of liability insurance with a minimum of $2,000,000 CSL (combined single limit) with the _____ Council, Boy Scouts, and Boy Scouts of America, names as additional insured, ten (10) day written notice of cancellation, and the period of time involved.

   b). A hold harmless agreement. (Copy attached)

   c). A certificate showing non-profit and/or tax exempt status.

   d). A roster showing the names of all youth and adults participating in this activity.

3. Agrees to pay $_____ for the use of Camp _____, which sum is payable by _____.

4. A deposit of $50.00 is required to be paid at the signing of this agreement. This is non-refundable, but is a part of the total fee.

5. Be responsible for any and all damages to Camp property which may reasonably be attributed to the actions of the said group and agrees to promptly pay any and all reasonable damage claims when presented.

6. While Scouting makes every effort to accommodate all persons with disabilities, it is a charitable, private organization not subject to the ADA, and any group who uses the property is responsible for ADA compliance and any accommodations necessary for its participants and visitors.

7. No alcoholic beverages or illegal drugs of any kind are permitted to be used on the premises.

8. Agrees that you will provide at least one adult leader (defined as 21 years of age or older for purposes herein) for every ten (10) members of the party present in camp below the age of 21 years; that at least on the said adult leaders must be present with the group at all times while the group is in camp.

9. Agrees that the group will abide by any and all of the camp operating rules and instructions of the Camp Ranger.

_____ Council, Boy Scouts of America

Organization

_____	_____
By	By
_____	_____
Title	Title
_____	_____
Date	Date

Note: Please return the original and one copy along with other required documents and the deposit to the _____ Council, Boy Scouts of America.

SCOUT OATH
On my honor I will do my best
To do my duty to God and my country
And to obey the Scout Law;
To help other people at all times;
To keep myself physically strong,
Mentally awake, and morally straight.

SCOUT LAW
A Scout is trustworthy, loyal, helpful,
friendly, courteous, kind,
obedient, cheerful, thrifty, brave,
clean, and reverent.

Project COPE/Climbing Safety CHECK

CLOTHING—No baggy clothing or loose jewelry; hair is tied up or tucked in.

HARNESSES/HELMETS—Properly fitted helmets; ropes properly attached; buckles on harnesses properly secured.

ENVIRONMENT—Keep all program areas safe, free from hazards and obstructions.

CONNECTIONS—Check and double-check—make sure anchor points are rigged properly, participants are properly connected, and carabiners are screwed down and locked.

KNOTS—check that knots are properly tied, dressed, and backed up with a safety knot.

THE RISK ZONE

BOY SCOUTS OF AMERICA®

Additional Resources

Scouting Literature

Boy Scout Handbook; Rock Climbing and Rappelling activity pamphlet; *Project COPE* manual; and *Backpacking, Camping, Climbing, First Aid, Geology, Hiking,* and *Wilderness Survival* merit badge pamphlets

Instruction and Guidebooks

Allen, Linda B. *High Mountain Challenge: A Guide for Young Mountaineers.* AMC Books, 1989.

Ashton, Steve. *All Action Climbing.* Lerner, 1993.

Carline, Jan D., Martha J. Lentz, and Steven C. MacDonald. *Mountaineering First Aid: A Guide to Accident Response and First Aid Care,* 5th ed. The Mountaineers, 2004.

Cox, Steven M., and Kris Fulsaas, eds. *Mountaineering: The Freedom of the Hills,* 7th ed. Mountaineers Books, 2003.

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History and Biography

Bonington, Chris. *Mountaineer: Thirty Years of Climbing on the World's Great Peaks.* Sierra Club, 1996.

Curran, Jim. *K2: Triumph and Tragedy.* Houghton Mifflin, 1997.

Fraser, Mary Ann. *On Top of the World: The Conquest of Mount Everest.* Henry Holt, 1991.

Jones, Chris. *Climbing in North America.* Mountaineers Books, 1997.

Krakauer, Jon. *Eiger Dreams: Ventures Among Men and Mountains.* Anchor Books, 1997.

———. *Into Thin Air: A Personal Account of the Mount Everest Disaster.* Anchor Books, 1998.

Messner, Reinhold. *The Crystal Horizon: Everest—The First Solo Ascent.* The Mountaineers Books, 1998.

Osius, Alison. *Second Ascent: The Story of Hugh Herr.* Stackpole Books, 1991.

Rosen, Mike. *The Conquest of Everest.* Bookwright Press, 1990.

Videos

The following videos are available by contacting Chockstone Press Inc., P.O. Box 3505, Evergreen, CO 80439-3505; telephone toll-free 800-337-5012; fax 303-670-9190.

The Art of Leading. Chockstone Press, 1988.

Basic Rock Climbing. Chockstone Press, 1988.

Organizations

Contact these national climbing organizations for information on climbing groups located near you.

The Access Fund
P.O. Box 17010
Boulder, CO 80308
Telephone: 303-545-6772
Website: http://www.accessfund.org

American Alpine Club
710 10th St., Suite 100
Golden, CO 80401
Telephone: 303-384-0110
Fax: 303-384-0111
Website: http://www.americanalpineclub.org

American Mountain Guides Association
1209 Pearl St., Suite 14
Boulder, CO 80302
Telephone: 303-271-0984
Fax: 303-271-1377
Website: http://www.amga.com
E-mail: info@amga.com

Eastern Mountain Sports Climbing School
Toll-free telephone: 800-310-4504
Website: http://www.emsclimb.com

The Mountaineers
7700 Sand Point Way NE
Seattle, WA 98115
Telephone: 206-521-6000
Fax: 206-523-6763
Website: http://www.mountaineers.org

National Outdoor Leadership School
284 Lincoln St.
Lander, WY 82520-2848
Toll-free telephone: 800-710-6657
Fax: 307-332-1220
Website: http://www.nols.edu/NOLS.html

Outward Bound
Telephone: 845-424-4000
Website: http://www.outwardbound.com

Sierra Club
85 Second St., 2nd Floor
San Francisco, CA 94105
Telephone: 415-977-5500
Fax: 415-977-5799
Website: http://www.sierraclub.org

Wilderness Education Association
1900 E. 10th Street
Bloomington, IN 47406
Telephone: 812-855-4095
Website: http://www.weainfo.org

Internet Resources

The Climbing directory in the popular Yahoo index (go to http://www.yahoo.com/recreation/outdoors/climbing) is a good place to start looking for World Wide Web sites, newsgroups, and other Internet resources that contain information on climbing.

Climbing magazine's online version has the latest news about record-breaking climbs, conservation, gear, and listings of events in the climbing world. You can also write a letter to the editor, subscribe to the magazine, or browse the magazine's index for other articles by going to *Climbing*'s Web address, http://www.climbing.com.

Glossary

aid climbing. Using rope and other gear to give the climber something to hang from or pull up on; using any means other than hands and feet to get up a climb. This type of climbing falls beyond the scope of BSA activities and is not permitted unless protected by a top-roped belay. (See "free climbing.")

anchor. Ropes, runners, and other pieces of equipment set up to secure a climber, rappeller, or belayer to an anchor point.

anchor point. A well-rooted tree, rock protrusion, properly installed bolt, or other convenient location for attaching carabiners, runners, or rope for belay and rappel systems.

ascending. Moving upward.

belay. The protection provided a climber or rappeller tied to a belay rope. The rope is managed by a belayer in such a way that the fall of a climber or rappeller will be arrested almost immediately.

belay device. A piece of hardware used for belaying; it simplifies the process of locking the rope to stop the fall of a climber or rappeller.

belayer. The person who manages the rope and is responsible for stopping the fall of a climber or rappeller.

bight. A bend in the rope. A bight is important for tying certain knots used for belaying, and for securing ropes into rappel or belay devices.

bolt. An artificial anchor point formed by driving a special bolt into a hole drilled into a rock face. This should only be done by a skilled climber. A carabiner may be clipped into the hanger attached to the bolt.

bouldering. Climbing on boulders or other steep faces without going more than shoulder height off the ground, usually protected by spotters rather than a rope belay.

BSA climbing director. A person who is at least 21 years of age and has successfully completed the Climbing section of a weeklong National Camping School.

BSA climbing instructor. A person who is at least 18 years of age and has successfully competed three days of training by a BSA climbing director.

carabiner. A steel or aluminum ring with a spring-loaded gate. Carabiners are used to connect pieces of climbing equipment and to secure rope to webbing, anchor points, and protection devices.

chimney. A crack large enough to accommodate a climber's body.

chimneying. Ascending by pressing the hands and feet against opposite sides of a large crack.

chock. Climbing hardware comprising removable protection.

Climb On Safely. The BSA's eight points for effectively and safely managing unit climbing and rappelling activities.

climbing. A challenging sport that always involves the skills of ascending and belaying or spotting, and may also include rappelling and bouldering.

cling. A handhold involving one or more fingers bent over a hold.

counterbalance. A combination hold that involves the entire body, requiring the climber to use position and weight distribution—for instance, applying pressure with the feet or hands in opposite directions—to make the most of minimal holds.

descending. Moving downward by rappelling or down-climbing.

down-climbing. Using hands and feet for balance while descending a moderate or steep face.

dynamic rope. Rope that stretches 6 percent to 10 percent to absorb the energy of a fall.

edge. The brink of a ledge or a small horizontal hold on a rock face.

edging. Standing on a nub or narrow ledge of rock with the side of the climbing shoe.

etrier. A ladder made from webbing.

face. A surface suitable for climbing, usually a natural rock formation. (See "wall.")

fall zone. The area beneath a climbing site where an object could fall, bounce, or ricochet.

figure-eight descending device. The hardware most often used by rappellers to control the speed of their descents.

foothold. A knob of rock, a crack, an edge, or some other feature of a climbing surface where a climber can place a foot while ascending or descending.

free climbing. Using only the hands and feet on natural features of the rock; rope and hardware are not used directly to help the climber scale a surface, but only for safety in case the climber falls. (See "aid climbing.")

handhold. A knob of rock, a crack, a ledge, or some other feature of a climbing surface that a climber can hold onto while ascending or descending.

hard fall. An instance when a climber or rappeller falls far enough to place significant stress on the rope, webbing, or hardware. Records of hard falls must be noted in the written histories of the rope and gear involved, and factored into equipment retirement decisions.

harness. Webbing either tied or commercially sewn to fit around the hips and legs. Harnesses allow climbers, rappellers, and belayers to attach themselves to belay systems and rappel ropes.

instructor-in-training (IIT). A person who is at least 16 years of age and who has received training in climbing, rappelling, belaying, and spotting from a BSA climbing director or instructor.

jamming. Placing a hand or foot into a crack and wedging it so that it will not slip out.

kernmantle. Strong, synthetic rope composed of a woven outer sheath surrounding an inner core. Kernmantle rope is the only rope that should be used for BSA climbing, rappelling, or belaying activities.

kiloNewton. Commonly used to measure the impact force and breaking strength of climbing ropes (1 kiloNewton = 224.8 pounds).

lead climbing. When climbers establish points of protection as they ascend by inserting chocks, nuts, or other hardware into cracks in the rock, and clipping the belay rope to them with carabiners. This type of climbing may be practiced during council or district activities only with a top-rope belay.

Leave No Trace. The BSA's methods and commitment to caring for the outdoors; the seven principles of Leave No Trace extend to climbing areas and the routes leading to them.

lieback (layback). A climbing hold accomplished by pulling against a crack or an edge with the hands while pressing on rock with the feet.

locking carabiner. A carabiner fitted with a mechanism that can be screwed or set to hold the carabiner gate closed. A double locking carabiner is preferred for BSA climbing and rappelling activities.

mantle. A climbing maneuver for hoisting oneself onto a ledge.

mountaineering. Climbing mountains. In addition to rock climbing ability, mountaineering may require the skills of route finding, wilderness camping, and ascending snow and ice.

nose-over-toes. A well-balanced position used to make descents on gentle slopes.

pockets. Holes in rock that may be used as holds.

protection. A piece of equipment used as an anchor point sometimes shortened to "pro."

protection system. The rope, hardware, webbing, and anchors used together to belay a climber or rappeller.

rappel device. A piece of hardware such as the figure-eight descending device that helps rappellers control the speed of a rappel.

rappelling. Descending by a controlled slide down a rope that is anchored at the top of a route.

rest step. A way of settling the weight onto the skeletal system to let muscles recover during a climb.

rock gym. An indoor climbing facility.

rope bag. A bag or pack designed for stowing and carrying a climbing rope.

rope drag. Friction or resistance created when a rope runs over rock or through pieces of protection.

rope stretch. The amount of "give" in a dynamic climbing rope.

runner (sling). A loop of commercially prepared webbing used for various purposes including setting up anchors, placing protection, and connecting pieces of climbing equipment.

safety knot. A knot tied in addition to the main knot to keep the main knot from untying or slipping. Also called a "backup" knot or "stopper" knot.

sewing machine leg. The shaking phenomenon sometimes experienced by a climber when muscles tire.

shock loading. The sudden, sharp force or stress on a rope and an anchoring system when a climber hits the end of the belay rope after falling a considerable distance. (See "hard fall.")

slingshot belay. A top-rope belay featuring a belayer on the ground. The rope runs from the belayer up to an anchor at the top of the climb, then down to the climber, forming the shape of a slingshot.

smearing. Pressing the sole of a climbing shoe against a surface and using the friction created to ascend a face.

spotter. A person on the ground who provides protection to a boulderer to help prevent injury to the boulderer in case of a fall.

spring-loaded camming device (SLCD). A specialized adjustable anchor designed to put pressure on both sides of a large crack. SLCDs come in a range of sizes.

static rope. Rope with minimal stretch. Static kernmantle rope can be used for top-rope belays and for rappelling.

Sticht plate. A simple belay device that, like all belay devices, relies on friction.

tail. The free end of a rope or piece of webbing after a knot has been tied. A safety knot is often tied in the tail to help protect the primary knot.

three-point stance. A stable position for a climber. One hand and both feet are on good holds on the rock, or two hands and one foot, freeing the other limb to move.

top-roping. Belaying a climber with an anchor at the top of a climb. The belayer may be anchored at the bottom of a climb (see "slingshot belay"), or at the top. All BSA climbing activities more than 6 feet above the ground must be protected with a belay.

traversing. Moving sideways on a face without gaining or losing much elevation.

tubular webbing. Nylon straps used to rig anchors, to form seat harnesses, to make runners, and for other purposes.

tying in. Attaching a rope to a climber's harness.

undercling. A kind of hold with the palms facing up, usually under a rock formation.

wall. A vertical climbing surface, often found at climbing gyms and constructed outdoor climbing facilities. Very high rock faces are also known as walls.

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Acknowledgments

For assistance in producing *Topping Out*, the Boy Scouts of America thanks author Robert Birkby, a member of the BSA's Climbing/Rappelling Task Force.

Thanks also to the other members of the Climbing/Rappelling Task Force for their practical and technical expertise: Jack Brown, Donna Cunningham, Greg Harmon, Allan Pitchford, Howard Liebmann, Chris J. Moon, Frank Reigelman, David Shows (Ph.D.), Keith Swedenburg, Chuck Treadway, Thomas R. Welch (M.D.), Todd Whiteley, and John Winter.

Thanks to the Scouts and Scouters of Troops 797, 6504, and 6542 of Mesa, Arizona, and Troops 268, 283, and members of Venturing Crew 2 of Waterbury, Connecticut, for their assistance with photos for this climbing/rappelling manual. We also thank members of Explorer Post 23 and post Advisors Mike and Patti Wheelock of Snohomish, Washington; and Vertical World Indoor Climbing Gym of Seattle, Washington.

For their generous and capable assistance with photography at Philmont Scout Ranch, thank you to camp directors Ben Brezina (Miner's Park) and K.C. Hinkley (Cimarroncito) and their staff members.