National Camping School

CLIMBING LESSON PLAN

BOY SCOUTS OF AMERICA®

National Camping School Climbing Lesson Plan

BOY SCOUTS OF AMERICA®

20-180A
2008 Boy Scouts of America

CLIMBING LESSON PLAN

Table of Contents

Introduction 5
Faculty 5
Organizing the Camping School 5
Daily Schedule 5
Training Techniques and Methods 5
Processing 6
Demonstration 6
Preparation 7
Subject: Getting Acquainted 9
Subjects: Introduction to the BSA and History of Climbing and Rappelling 11
Climb On Safely and the Climb On Safely Training Outline 11
Organizational Structure of BSA Climbing Programs 11
Subject: Medical Screening and Fitness 15
Subject: Ropes, Knots, Harnesses, and Carabiners 17
Subject: Equipment Inspection and Inventory 21
Subject: Record Keeping and Equipment Control 23
Subject: Spotting 25
Subject: Bouldering 27
Subject: Anchor Points and Systems 29
Subject: Belaying and Signals 33
Subject: Climbing and Top-Roping 37
Subject: Rappelling 39
Subject: Effective Teaching 43
Subject: National Climbing Standards and Legal Liabilities 49
Subject: Environmental Conditions 55
Subject: Site Management 59
Subject: Staffing and Staff Training Plan 61
Subject: Emergency Plans and Incident Resolution 63

Introduction

The seven-day National Camping School for Scout camping usually consists of up to 12 sections. The Management section is designed for camp directors, business managers, and others involved in the overall administration of the long-term Boy Scout camp or Cub Scout resident camp.

The Program section helps Scouters prepare to assist Boy Scout or Varsity Scout units in camp. The Ecology/Conservation, Shooting Sports, Outdoor Skills, Aquatics, Project COPE, Ranger, Commissioner, Trek Leader, Climbing, and Chaplain sections offer training for these important camp positions.

Each region schedules its own schools. Many are held at long-term camps operated by the Boy Scouts of America so that all of the program features, activities, and equipment are at hand to give the participants a realistic view of camp program and administration. In some cases, the camping school participants may contribute to the preparation of opening the camp as they carry out projects related to the school curriculum.

Faculty

To ensure the continuity of the program, each National Camping School is held under the direction of a Scout executive or a member of the BSA national staff. This person may be from either the national or the regional office. A regional representative attends because the responsibility for administering the school rests with the region.

A director and one or more associate directors lead each of the camping school sections. Leaders are chosen based on their experience and knowledge of the subjects to be covered.

Each section director is responsible for the training presented in his or her section. The camping school director has the overall responsibility for the school's success.

Organizing the Camping School

Complete details for administering the camping school can be found in the *National Camping School Administrative Guidebook.* When the seven-day school is held in an operational Scout camp, it is practical to simulate unit camping with central food service.

Daily Schedule

See the separate National Camping School Schedule, No. 20-119B.

Instruction periods generally are in 60- or 90-minute time blocks. These are only guidelines. The section director and associate determine instruction or activity length. It is important that sections be on time for joint sessions, meals, and events involving the whole school.

For joint sessions of two or more sections, determine who has responsibility for presenting the program during faculty planning sessions before school begins. The lesson plans will appear in the schedule of both or all the section instructor guides. Minor adjustments in the daily schedule may be necessary, but avoid major changes. Lesson plans that involve the entire school—such as mealtime presentations—can be found in the *NCS Administrative Guidebook*.

Training Techniques and Methods

A Scout camp is filled with action—and a camping school should also be active and exciting.

The Lectern

Good trainers never put anything between themselves and their audience. Even the best speaker tends to hide behind the lectern. Use a small table at the front of the room and place your notes on a front corner. The typeface used for these lesson plans was chosen because it can be read easily from this position. You will then be free to move about—into the group if necessary—and easily return to the corner to check your notes.

Use a yellow highlighter to accentuate key words. If you have difficulty reading the notes from tabletop height, use a clipboard. Some trainers transfer their notes to 3-by-5- or 4-by-6-inch cards. Be careful not to drop these, however. (It might be wise to number each card.)

Flip Chart

The flip chart has all of the advantages of the chalkboard except size. It can be used to collect responses from the group, then the sheet torn off and posted for future reference. Print rather than write, and make block letters at least four fingers high. Use a heavy crayon or water-based felt pen with a broad tip. Permanent markers (the ones that smell bad) tend to bleed onto the next page. For emphasis, use several colors. When outdoors, using clothespins will keep the sheets from fluttering in the breeze.

Once again, print, use big block letters, and limit each sheet to one idea. Some trainers like to set up their flip-chart pages with the first page on the bottom. The whole presentation is laid back and brought forward, page by page. By working from back to front, you won't reveal your next point if the printing shows through as it usually does with newsprint.

Posters

Posters are used often in camping school. The activity posters are not designed for use in a classroom setting, however, since the printing is much too small. These are used to stimulate interest for an activity area. Posters are usually placed for decoration, atmosphere, and as a reminder of a continuing point. Light cardboard is often used, but sheets of wrapping paper work as well.

Audiovisuals

Videocassettes, CDs, DVDs and PowerPoint presentations can be exceptionally useful and effective if presented properly. The room or area should be darkened, the monitor or screen placed so that all can see, and the sound clear enough for all to hear. Preview all audiovisual materials prior to the group showing. In using audiovisual aids, introduce the subject and ask the participants to look for certain main points. Then show the video. Finally, ask for the points the participants were to find and summarize. The trainer's axiom, "Tell 'em what you're gonna tell 'em, tell 'em what you told 'em" applies particularly to audiovisuals.

Questions

Questions directed to a group can cause good thinking to take place. Avoid questions with simple answers. "What kind of knot is this?" "Square knot." "What's a square knot used for?" "Tie two ropes together." These are not good questions. "If you want to tie two ropes together, what knots could you use?" This is a good question as there are many answers. "Square knot, sheet bend, carrick bend, fisherman's knot, linked bowlines." This now leads to the subject of selecting a knot for a particular joining purpose.

A question from a participant to the instructor also can open up thinking. Try to avoid the direct answer, but don't carry this to extreme. Involve the group if possible. When the question involves a problem, the person may have already decided on an answer and may only want confirmation. If you sense this, ask the person what, after careful consideration, can be done. Then let the group validate the participant's decision or offer new ideas.

Discussion

When the entire group is involved in talking about a problem or situation, you have a discussion. Careful control is needed to stay on track, avoid dispute, and arrive at some sort of consensus. Some people will seek to dominate a discussion, others will never utter a word. However, the silent listener may be getting more out of the discussion than the vocal participant. Discussion must always be resolved with a summary statement. Differences of opinion should be recognized.

Buzz Group

In a buzz group, a small team of people address themselves to a problem or concern while other buzz groups are doing the same. A fairly brief time limit is imposed, after which each group reports its findings. A variety of methods can be suggested for the buzz group to use—brainstorm, project, critical incident, etc. Buzz grouping can have a negative effect if used too frequently or if a base of information has not been provided.

Role-Play

Many trainers avoid role-play because they feel the participants will think it's silly or embarrassing. This is not true. After some initial reluctance, most people will usually get into the spirit of things and enjoy the experience.

In unrehearsed role-play, the participants are simply assigned roles, given a situation, and allowed to proceed on their own. This must always be followed by an analysis or evaluation to assure that the teaching points were learned.

In outlined role-play, the participants know in advance what the desired outcome is to be and may elect to discuss their roles in advance. This assures that the teaching points are clearly made. The instructor must then summarize.

Processing

Processing is the technique whereby the instructor selects, clarifies, and directs participant contributions toward the teaching points that are to be made. When asking group members to suggest, for example, the elements of a good campfire, their recommendations should closely reflect your own lesson plan. Thus you may paraphrase a suggestion, combine suggestions, or dig for a point that has not been suggested. It is vital to accept *all* suggestions as worthy but still process them into a form that will meet your objectives. Look out for the point you may have never considered—don't process it away but add it to your list. It may be a real gem.

Demonstration

Ever hear a Scout say, "Show me. I'll bet I can do it." A demonstration is the best way to create interest in a skill. If the skill is complex, break it into its simpler steps. The instructor can then demonstrate the skill while the participants follow the steps. Before moving to the next step, check carefully to see that everyone is successful. You need patience to teach by demonstration. Something that seems easy to the instructor may be complicated for the learner. Never criticize; instead, praise every attempt. Demonstration teaching works best one-on-one or in small groups.

Preparation

Make specific faculty assignments several weeks in advance of the camping school. Do this at a preliminary planning meeting. If a meeting is not practical, define assignments well in advance by correspondence.

Usually, the camping school faculty arrives on the evening of the third day before the school opens. This allows for two full days of on-site preparation.

As soon as you receive your copy of this instructor guide and your specific assignment, review the overall flow of the camping school to see how you and your section fit in. Then carefully review the lesson plans for which you are responsible.

1. Do you agree with the learning objectives and the material to be covered? If not, check with the camping school director.
2. Do you agree with the references listed? Do you have, or can you get, copies? Do you agree with the equipment list? Again, check with the school director if you have a problem. Remember that we must use references and resources that will be available to the school participants in their home camp. If you choose a resource that is not readily available, bring copies for everybody.
3. Review the method of presentation suggested in the lesson plan. Do you understand it? Can you suggest a better method for strengthening the learning objectives? If so, work it out and plan to use it.
4. If charts, posters, flip charts, and exhibits will be part of your presentation, prepare these in advance, and bring them with you. The preplanning period will be busy.
5. Finally, rehearse your presentation. Set up your "act" in front of a mirror and do your thing. Say all the words out loud, make the gestures, turn the flip-chart pages. You may feel silly, and your family will think it strange, but this will polish your presentation and improve your timing.

Remember that camp staff leaders will be coming to the school from all over your region—and perhaps other regions. They will go home and *actually use* the material you present. Thus, you will affect thousands of Scouts and leaders. If this sounds a little frightening, good! You have a great responsibility, and your absolute best efforts will guarantee top results.

Revisions

Suggestions to NCS Lesson Plans are always welcome. Send your suggestions, with the page numbers affected, details of the change, and the reason for the change, along with your name and contact information, to:

Boy Scouts of America
National Camping School Lesson Plans
1325 West Walnut Hill Lane
P.O. Box 152079
Irving, TX 75015-2079

Subject: Getting Acquainted
Course: Climbing

Time Frame
60 minutes

Instructional Objectives
At the end of this session, participants will be able to

- Identify staff members of this NCS Climbing course.
- Feel at ease around staff members and other participants.
- State the overall goals of this NCS course.

Training Aids and Equipment Required

- *Project COPE* manual, No. 34371C

Materials for Distribution

None, unless additional games that are played require special equipment.

Methods and Overview

- Minilecture: Welcome and Staff Introductions
- Group activity: Icebreaker Games and Participant Introductions
- Minilecture: Goals of NCS Climbing

Lesson Plan: Getting Acquainted

Welcome and Staff Introductions

Greet participants and introduce yourself and each staff member. Provide some background information about your Scouting, climbing, and teaching expertise.

Go over logistics for the week, including uniforming and facilities (dining hall, restrooms, housing, program areas, etc.). Explain expectations and ground rules.

Icebreaker Games and Participant Introductions

Use games to encourage interaction among group members.

Mingle, Mingle

Play the game Mingle, Mingle. The setting is a lively party with much visiting, but as people talk to one another, they may say only the words “mingle, mingle.” Encourage people to “mingle, mingle” with one another, and as they do, call out a category such as “Shoes!” Continuing to communicate only with the words “mingle, mingle,” participants sort themselves into groups. When obvious groups have formed, stop the mingling and ask what each group of participants thinks they represent—“brown shoes,” for example, or “lace-up shoes.” Give them time to enjoy the answers and the process they used to make their decisions. Tell them to “mingle, mingle” again and, after a few moments, call out another category (hair, number of years in Scouting, etc.).

Introducing Participants

Have participants introduce themselves and give brief descriptions of their involvement with Scouting and climbing and rappelling.

Have You Ever?

Play the game Have You Ever? Participants place their chairs in a circle, facing outward, and sit down, just as they would for Musical Chairs. Have one person stand and remove his or her chair from the circle. That person is "It," and asks the first "Have you ever ____?" question related to climbing or rappelling. For example:

- Have you ever climbed at an indoor facility?
- Have you ever rappelled?
- Have you ever belayed?
- Have you ever climbed or rappelled at a natural site?
- While climbing or rappelling, have you ever been afraid?
- Have you ever served as a spotter for someone bouldering?
- Have you ever participated in Project COPE activities?
- Have you ever had training in climbing and rappelling?

All participants who can answer the question in the affirmative, including It, must move to a new chair. Players may not move to the next chair to the left or right. Whoever is stranded without a place to sit becomes It and asks the next "Have you ever . . . ?" question.

Other get-acquainted and warm-up games may be found in chapter 2 of the *Project COPE* manual.

The Purpose of Games

Explain that games such as those participants have just enjoyed can be an important part of their home climbing and rappelling programs and staff training. Games help people feel comfortable in a group setting and allow them to begin loosening up for the physical activities to come. Games should be fun and good for both the mind and the body. As with all climbing and rappelling activities, participants may choose the degree to which they will take part.

Goals of NCS Climbing

This is the Climbing section of the BSA National Camping School. Explain what will and will not be covered in the course, and that the goals of this course are to

- Train directors who oversee the development and operation of climbing and rappelling programs at the district and council levels.
- Conduct training and exercises in ways that model safe and appropriate behavior by staff members and course participants.
- Have fun.

Note to instructors: As with all skills presented in this course, as a group's instructor you must be very secure in your knowledge before the course begins. In addition to knowing the material, give plenty of thought to the ways in which you will present the information. Don't pretend to be an expert. If there are holes in your expertise, get the training and experience you need before accepting a position as a National Camping School climbing instructor.

Subjects: Introduction to the BSA and History of Climbing and Rappelling Climb On Safely and the Climb On Safely Training Outline Organizational Structure of BSA Climbing Programs

Course: Climbing

Time Frame
60 minutes

Instructional Objectives
At the end of this session, participants will be able to

- Explain the goals and objectives of climbing and rappelling and how they relate to the BSA.
- Give a brief history of BSA climbing and rappelling.
- Explain Climb On Safely, what it is, how it is used, who is involved, and what it is not.
- Explain the purpose of Climb On Safely.
- Describe the organizational structure of a BSA climbing and rappelling program, including the role of the BSA climbing director and other staff members.

Training Aids and Equipment Required

- Flip chart and markers

Materials for Distribution
Participants will use these publications throughout the remainder of the course:

- *Guide to Safe Scouting,* No. 34416
- *Climb On Safely: A Guide to Unit Climbing and Rappelling,* No. 20-099B
- Climb On Safely Training Outline, No. 20-101B
- *Topping Out: A BSA Climbing/Rappelling Manual,* No. 32007
- Climbing/Rappelling National Standards, No. 20-102 (current year)
- *Climbing* merit badge pamphlet, No. 35873

Methods and Overview

- Minilecture and brainstorming: The Aims and Methods of Scouting
- Minilecture: History of BSA Climbing and Rappelling
- Minilecture: The Climb On Safely Program
- Minilecture: Understanding the Structure of the Program

Lesson Plan: Introduction to the BSA and History of Climbing and Rappelling

The Aims and Methods of Scouting

Review the aims and methods of Scouting and stress that the aims serve as primary goals for all Scouting programs. Tell how the methods help us accomplish the aims. Climbing and rappelling can be used as means to accomplish these goals. (For more information on the aims and methods of Scouting, see the *Scoutmaster Handbook* and the *Boy Scout Handbook*.)

Divide participants into small groups and allow them 10 to 15 minutes to brainstorm a list of ways climbing and rappelling activities can be used to accomplish the aims and methods of the BSA. Spend an additional 15 minutes reviewing and discussing the lists developed by each group.

History of BSA Climbing and Rappelling

Briefly review the development of climbing and rappelling, highlighting the BSA's involvement. People have been climbing mountains and cliffs for a very long time. As climbing evolved into a recreational activity, mountaineers developed techniques to increase their safety and success on ascents and while descending. These techniques evolved over the decades, developing into the sport of climbing.

Climbing and rappelling have long been activities featured at many BSA camps and several high-adventure bases. The BSA introduced the Climbing merit badge in 1996 and the Climb On Safely program in 1998, and BSA National Camping School began offering a Climbing section in 2000. (For a more detailed history, see *Topping Out: A BSA Climbing/Rappelling Manual*.)

Lesson Plan: Climb On Safely and the Climb On Safely Training Outline

The Climb On Safely Program

Ask the group if they think more accidents and incidents occur while climbing or while rappelling. The answer is that 90 percent of accidents and incidents happen during rappelling, which is why Climb On Safely was developed (and also why the BSA requires an independent safety line while rappelling).

Explain that *Climb On Safely is an orientation only and does not constitute training on how to climb or rappel!* By comparison, *Topping Out* and the NCS Climbing section are intended for personnel in charge of climbing and rappelling programs at the district and council levels, as well as climbing activities involving multiple units.

Tell participants that Climb On Safely is the BSA's recommended procedure for individual units organizing climbing and rappelling activities at natural sites or at specifically designed facilities such as climbing walls, towers, or climbing gyms. The intended audience for Climb On Safely training is adult Scouters who are at least 18 years of age. Climb On Safely training allows a unit leader to organize a climbing/rappelling activity, find a qualified instructor, and ensure that the eight points of Climb On Safely are being followed.

Climb On Safely training should be part of every adult leader's orientation at a roundtable or summer camp. Ideally, every unit leader in summer camp will have an opportunity to attend this orientation under camp leadership. The training may also be conducted in connection with any BSA training program for leaders of Boy Scouts, Varsity Scouts, or Venturers, and can be offered in connection with any other supplemental training programs or roundtables. To teach Climb On Safely to unit leaders, a person does not need to be a trained climber, but he or she must understand the Climb On Safely program.

Review the eight points of Climb On Safely.

National Standards for Climbing and Rappelling

Hand out copies of the Climbing/Rappelling National Standards. Ask participants to review the standards during the next several days, writing down any questions and concerns. The national standards will be addressed in detail later during the session.

Lesson Plan: Organizational Structure of BSA Climbing Programs

Understanding the Structure of the Program

Review with participants the following format of council climbing and rappelling programs. (It may help to write the organizational structure on a flip chart in advance, before this session begins.)

Council Camping Committee

This council-level committee oversees outdoor activities including climbing and rappelling. Many council camping committees establish a subcommittee in charge of district and council climbing and rappelling programs.

Council Climbing and Rappelling Subcommittee

This subcommittee of the council camping committee helps ensure that all council climbing programs are in compliance with BSA Climbing/Rappelling National Standards. In addition, the subcommittee develops opportunities for unit leaders to be trained in Climb On Safely as well as provide training to unit leaders so they can supervise climbing activities (meet the requirement of Qualified Instructor in Climb On Safely). This committee may be a joint COPE/climbing committee, or they may be separate committees.

Climbing and Rappelling Chair

The chair of the climbing and rappelling subcommittee also may serve on the council camping committee. This person should hold current National Camping School training as a BSA climbing director. If the committee is a joint COPE/climbing committee, the chair should have current NCS COPE or climbing training.

BSA Climbing Director

For qualifications and responsibilities, see chapter 13, “Staffing and Instructor Training,” in *Topping Out*.

BSA Climbing Instructor

For qualifications and responsibilities, see chapter 13, “Staffing and Instructor Training,” in *Topping Out*.

BSA Climbing Instructor-in-Training

For qualifications and responsibilities, see chapter 13, “Staffing and Instructor Training,” in *Topping Out*.

Subject: Medical Screening and Fitness

Course: Climbing

Time Frame
60 minutes

Instructional Objectives
At the end of this session, participants will be able to

- Describe how to become aware of medical needs.
- Describe how to adapt the program to the medical conditions of each individual.
- Describe the level of fitness required for climbing and rappelling.
- Plan and teach warm-up activities appropriate for climbing and rappelling activities.

Training Aids and Equipment Required

- *Camp Health and Safety,* No. 19-308
- *Project COPE* manual, No. 34371C
- Flip chart and markers

Materials for Distribution

- *Climb On Safely: A Guide to Unit Climbing and Rappelling,* No. 20-099B
- Climb On Safely Training Outline, No. 20-101A
- *Topping Out: A BSA Climbing/Rappelling Manual,* No. 32007
- BSA Personal Health and Medical Record Form—Class 2, No. 34414A

Methods and Overview

- Minilecture and brainstorming: Fitness and Medical Screening for Climbing and Rappelling
- Minilecture: Review the BSA Medical Form
- Group activity: The Importance of Warming Up

Lesson Plan: Medical Screening and Fitness

Fitness and Medical Screening for Climbing and Rappelling

Climbing and rappelling are strenuous activities requiring a moderate to high level of physical fitness. Ask participants to brainstorm a quick list of ways climbing and rappelling activities can challenge participants physically and mentally.

Explain that every camper must have a current BSA Personal Health and Medical Record Form—Class 2 or 3, plus screening by a licensed health care practitioner or a person trained by a health care practitioner. Each council should have a supervising camp physician who will screen potential climbing/rappelling participants. The camp's supervising physician may designate and train a qualified person to conduct the screening.

A medical health history/informed consent form signed by a parent or legal guardian is required for all participants in off-season (non–summer camp) activities. Non-Scout groups must also complete the hold-harmless section of the form. Summer camp participants are screened upon arrival at camp.

Participants should be asked to relate any recent injuries or illnesses before participating. All supervision, discipline, and protections should be adjusted to anticipate any potential risks associated with individual health conditions. For significant health concerns, an examination by a physician and consultation with parent/guardian is appropriate.

BSA climbing directors and instructors should be aware of potential medical conditions of participants. Ask group members to brainstorm what those conditions might be, why these conditions are important, and how directors and instructors can address them. Conditions to discuss may include: heart ailments, respiratory problems, allergies, back and joint problems, hernias, recent surgery, medications, and physical and mental disabilities.

The medical conditions of potential participants may not necessarily exclude them from climbing and rappelling activities. Discuss possible accommodations that can be made to allow individuals to participate at levels that will not endanger them.

Stress how important it is for climbing and rappelling staff members to identify significant medical conditions that may have arisen after the BSA Personal Health and Medical Record Form was completed. Factors to consider include:

- Any visit to a doctor or clinic since the form was completed
- Any recent illness, injury, rash, or allergic reaction
- Any ongoing treatment or medication
- Anything unusual in a participant's appearance

Review the BSA Medical Form

Give each participant a BSA Personal Health and Medical Record Form—Class 2, and explain the importance of each section.

The Importance of Warming Up

An important responsibility of climbing instructors is helping participants prepare themselves physically and mentally for upcoming activities. Warm-up and stretching exercises are a good way to do that.

Group Exercise

Have participants teach and lead one another through various warm-up and stretching exercises. For future reference, encourage them to compose lists of these warm-ups.

Lead the group through one or more warm-up or stretching exercises. The *Project COPE* manual contains many suitable exercises, in particular the following: Stepping Domes, Trust Duo, Human Spring, and Trust Circle.

Subjects: Ropes, Knots, Harnesses, and Carabiners

Course: Climbing

Time Frame
3 hours

Instructional Objectives
At the end of this session, participants will be able to

- Describe the types, uses, and care of ropes and webbing approved for BSA climbing, rappelling, and belaying.
- Teach how to tie selected knots used in climbing and rappelling, and explain when each is to be used.
- Demonstrate the use of various styles of climbing harnesses and demonstrate how to form a tied harness.
- Describe the pros and cons of various harnesses.
- Demonstrate the proper use and care of carabiners.

Training Aids and Equipment Required

- Projector and photos of knots and how to tie them (Optional. Research available online resources.)
- 10-foot lengths of retired climbing rope, one per participant
- 10-foot lengths of 1-inch tubular webbing, one per participant
- 30-foot lengths of 1-inch tubular webbing, one per participant
- 6-foot lengths of 7 mm accessory cord for tying Prusik knots, two per participant
- Sample ropes, including dynamic and static kernmantle of the sort used in BSA climbing and rappelling programs
- Sections of retired rope showing different kinds of damage
- A variety of commercial harnesses, including chest and full-body harnesses
- Sample carabiners of various shapes, including both the locking and nonlocking types
- *Topping Out: A BSA Climbing/Rappelling Manual,* No. 32007

Materials for Distribution
None

Methods and Overview

- Minilecture: Anatomy of a Rope
- Group demonstration and practice: Knots Used in Climbing and Rappelling
- Minilecture and group demonstration: Know Your Harnesses
- Minilecture and demonstration: Types of Carabiners

Lesson Plan: Ropes, Knots, Harnesses, and Carabiners

Anatomy of a Rope

Show and discuss the different types of rope that can be used during BSA climbing and rappelling activities. Stress the importance of correct diameters, lengths, and approval by the Union Internationale des Associations d'Alpinisme (UIAA), National Fire Protection Association (NFPA), and/or European Community Norm (CE), which establish standards for rope and climbing equipment. Allow participants to handle ropes and to identify the anatomy of a rope, including the braided core (the *kern*) and the woven sheath (the *mantle*). Point out the differences between *static* and *dynamic* rope, and discuss when each may be used. The mantle of dry rope is impregnated with a chemical treatment that makes the rope water-resistant. This treatment is useful for ice climbers or cavers but provides little benefit to the summer camp program.

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 ropes must be UIAA- or CE-approved. All static ropes must have a tensile strength (breaking strength) rating 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; every climbing rope must have a minimum diameter of 10.5 millimeters. All ropes and nylon webbing must be new when procured. Use of three-strand rope for climbing or rappelling is prohibited. Three-strand (multiline) rope 1/2 inch or larger in diameter may be used for lobster claws and hand lines on low- or high-course elements. Webbing must be designed for climbing and must have a minimum breaking strength of 15.6 kiloNewtons (3,500 pounds) when new.

A record of each rope's use must be maintained. The rope must be permanently retired and properly disposed of if it has been damaged, arrested a certain number of hard falls, or reached the end of its useful life as defined by the current-year national standards and determined by the climbing director.

Pass around sections of damaged rope and give participants time to familiarize themselves with the appearance and feel of different kinds of rope damage. Discuss the criteria for removing a rope from a program site and the correct means of retiring it.

Knots Used in Climbing and Rappelling

Provide each participant with a length of retired climbing rope. (A 6-foot length is acceptable, though 10-foot ropes offer more options for practicing knots.) Discuss the kind of rope it is and why it has been retired. Define terms that will make it easier to describe the tying of knots: *running end (working end), standing end, bight (bend), loop,* and *tail.*

Give a definition for *knot*—a fastening made by tying together pieces of rope or by intertwining a rope. The following knots are those that should be mastered by every BSA-trained climbing director. See *Topping Out,* chapter 5, "Knots and Knot Tying," for specific instructions.

- Figure eight follow-through
- Figure eight on a bight
- Double figure eight loop (super eight)
- Water knot (ring knot)
- Double fisherman's knot (grapevine knot)
- Clove hitch
- Prusik knot
- Bowline
- Münter hitch (Italian hitch)
- Killick hitch
- Safety knots (half-hitch, overhand, and barrel knots are preferred)
- Alpine butterfly

Stress that BSA climbing directors should be able to tie knots automatically—even during emergencies or other stressful situations.

Show the knots that participants will be expected to master, and give them time to practice tying knots. If available, use an overhead projector to illustrate each knot. Encourage participants to help one another; someone with a firm understanding of a knot can help others who are not as secure with their skill. All BSA climbing directors should have the skill to teach, as well as tie, the required knots.

Emphasize the importance of backing up every knot with a safety knot. (The double fisherman's knot, by its nature, backs itself up with the final turns of the rope.) Once a knot has been tied, remind participants that there are three important steps that must be completed before the knot can be trusted:

- **Dress the knot.** Adjust the parts of the knot so that all bends and loops are correctly oriented and the strands lie neatly against one another. Knots are strongest when their architecture is correct and everything is properly aligned. When a knot is tied neatly, it is easier to determine that it is tied properly. It also makes the knot easier to untie.

- **Load the knot.** Without putting yourself at risk, place weight on the knot in the direction it will be expected to experience strain. This will tighten the knot. Check to be sure it is still neatly dressed.
- **"Safety" the knot with a backup knot.** To further ensure that the knot cannot come loose, secure the running end of the rope to the standing part with a safety knot.

Add that a good knot has these qualities:

- It is relatively easy to tie.
- It stays tied.
- It has minimal effect on rope strength.
- It is easy to untie, even after bearing a load.

Encourage participants to keep the rope lengths and webbing with them for the rest of the National Camping School session, and to practice knots whenever they have a free moment. The more they tie knots, the more deeply the knots will become engrained in their minds. Instruction is helpful, both from printed resources and from good teachers, but a mastery of knots comes only with practice.

Course instructors will decide when and how to test participants on their skill at tying knots. It may be at a certain time set aside specifically for that purpose, or can be incorporated with other activities during the week. Assigning participants to teach certain knots to others is a way of observing both their knot-tying ability and their instructional skills. Whatever the format an instructor chooses, be sure that all participants show competence and ease in handling rope and tying knots.

Know Your Harnesses

Manufactured Harnesses

Allow participants to become familiar with several kinds of commercially made harnesses. Guide the group in reviewing how to examine harnesses for damage, and let them adjust the harnesses, try them on, and correctly tie in to the end of a belay rope. Always follow the manufacturer's recommendations for tying into and clipping into the harness.

Tied Harnesses

While this technique is seldom used anymore, a 30-foot length of nylon tubular webbing can be wrapped around the body and tied in special ways to form a reliable tied harness for climbing, rappelling, and belaying.

Using *Topping Out* as a guide, demonstrate tying a seat harness. If time permits, hand out 30-foot lengths of 1-inch webbing and have participants practice tying these harnesses. It may be helpful for them to practice in pairs, with more experienced people instructing those who are less adept at tying harnesses. When participants have successfully assembled their tied harnesses, have them correctly tie their belay ropes into their harnesses.

Commercial harnesses and tied harnesses are only as safe as the people using them. Anyone responsible for others during climbing and rappelling activities should understand how to put on and adjust the harnesses to be used at that site, and should do it correctly every time. Before any climbing or rappelling activities begin, an instructor should check and double-check each person's harness to be sure it is properly fitted and secured.

Types of Carabiners

Carabiners are an indispensable component of climbing and rappelling systems.

- Display different types of carabiners and discuss their relative strengths and weaknesses. Pay special attention to the differences between nonlocking, locking, and double-locking carabiners, and demonstrate how carabiners used in pairs are to be positioned with their gates reversed.
- Demonstrate how to examine carabiners for excessive wear and damage, using retired carabiners as examples.
- Determine their source of acquisition and track their history of use.

Remind students that only steel carabiners can be used on steel cable. *Topping Out* chapter 3, "Equipment," describes a three-step inspection to be conducted before each use of a carabiner. **Any carabiner that does not pass the three-step inspection must be immediately removed from service and destroyed.**

Show various methods of marking equipment (colored tape, carabiners of various hues, etc.).

Subject: Equipment Inspection and Inventory
Course: Climbing

Time Frame
60 minutes

Instructional Objectives
At the end of this session, participants will be able to

- Inspect each piece of equipment and determine its suitability for use in a climbing/rappelling program.
- Properly retire equipment that has been damaged or has outlived its usefulness.
- Mark equipment items for inventory and record keeping.
- Write an inventory of the types, numbers, and sizes of equipment needed for the climbing/rappelling program they will be directing.

Training Aids and Equipment Required

- *Topping Out: A BSA Climbing/Rappelling Manual,* No. 32007
- Climbing/Rappelling National Standards, No. 20-102 (current year)
- Rope, webbing, and hardware exhibiting various kinds of damage from misuse and age
- Rope dip, colored tape, and shrink-wrap indicators for marking rope
- Lengths of retired rope for practicing rope marking
- Flip chart and markers

Materials for Distribution
None

Methods and Overview

- Minilecture: The BSA Climbing Director's Role in Equipment Inspection and Inventory
- Hands-on demonstration: Examining Damaged Gear
- Hands-on demonstration: How to Mark Gear
- Small-group exercise: Developing an Inventory List

Lesson Plan: Equipment Inspection and Inventory

The BSA Climbing Director's Role in Equipment Inspection and Inventory

Explain that participant safety during climbing and rappelling activities depends in part on using gear that is in acceptable condition and is appropriate for the participants' skill levels as well as the climbing/rappelling site being used. It is the director's responsibility to ensure that every piece of rope, webbing, and equipment at a site meets BSA national standards for climbing and rappelling, and is the right gear for the site where it is being used. Where appropriate, equipment must have UIAA, CE, NFPA, or ASTM approval.

A permanent record of each item must be kept in order to trace its history and indicate when it should be retired. Stress the importance of getting second opinions from BSA climbing instructors and/or others any time a BSA climbing director is unsure about the quality of the rope, webbing, or gear. Other qualified personnel may have information and perspectives that can make it easier to determine whether to retain or retire the item in question.

Examining Damaged Gear

Allow participants to examine and handle various pieces of equipment that have been permanently retired due to damage by aging, misuse, and/or weathering. Offer as wide a variety of samples as possible—carabiners, ropes, webbing, helmets, harnesses, etc. Encourage participants to find the damage themselves and to explain to the group why the damage renders the item unsafe. Include pieces of equipment in good condition, too, so that participants can compare them with damaged gear.

Retiring Equipment

Discuss appropriate methods for retiring unsafe equipment and ensuring that it can never be used again during climbing or rappelling activities. Retired rope must be cut into pieces no longer than 16 feet and marked so that it can never be used to support life. Some retired ropes may be used for low-course COPE activities; they must be either marked with a dark line through the entire length or spray-painted with orange paint to label them as retired.

How to Mark Gear

Emphasize the importance of marking each piece of equipment in order to facilitate inventory and record keeping. A continuous history of an individual rope or harness may be impossible to maintain if that item cannot be differentiated from others that appear identical. It is not required that each carabiner or belay device be individually labeled.

Provide participants with markers, rope dip, shrink-wrap indicators for rope ends, colored tape, or other materials, and allow them to practice marking retired hardware, webbing, and rope.

Developing an Inventory List

Working together or in small groups, ask each participant to formulate a list of equipment needed for the specific program he or she will be directing. If appropriate, use the flip chart to display suggestions from individuals. Include the following considerations:

- Maximum number of participants who will need harnesses, helmets, and gloves at any given time.
- Variety of harness sizes required to meet the needs of anticipated participants.
- Number of instructors and instructors-in-training who will need harnesses, helmets, gloves, etc.
- Number of climbing routes and rappelling routes to be outfitted with anchor systems, ropes, and belayers.
- Number of safety lines required at the top of routes.
- Equipment and ropes needed to perform a rescue.
- Appropriate type of hardware for the required anchor system. Steel carabiners or rapid links must be used on steel cable.
- Appropriate webbing, ropes, and hardware to construct anchor systems.

(Note that backup equipment to be used during emergencies will be discussed during the lesson plan Emergency Plans and Incident Resolution.)

Subject: Record Keeping and Equipment Control

Course: Climbing

Time Frame
30 minutes

Instructional Objectives
At the end of this session, participants will be able to

- Identify types of record keeping and the logs required for a program to meet BSA national standards.
- Design a maintenance record system and inventory control for a climbing/rappelling program.
- Properly fill out records and logs and get them into the right hands.
- Describe a secure equipment control/storage system to be used for a climbing/rappelling program.

Training Aids and Equipment Required

- *Topping Out: A BSA Climbing/Rappelling Manual,* No. 32007
- Sample history records
- Flip chart and markers

Materials for Distribution

- Climbing/Rappelling National Standards, No. 20-102 (current year)
- Sample forms for tracking the history and use of equipment (from *Topping Out*)

Methods and Overview

- Minilecture: Maintaining Records of Use
- Group discussion: Equipment Inventory and Control Systems

Lesson Plan: Record Keeping and Equipment Control

Maintaining Records of Use

Explain that maintaining the highest level of safety at a climbing and rappelling site is in part dependent on accurately recording the history of use of all ropes, webbing, harnesses, helmets, hardware, and any other items involved in the program.

Distribute sample forms for tracking the history and use of equipment, or ask participants to turn to the sample forms found in chapter 3, "Equipment," and chapter 4, "Rope and Rope Handling," of *Topping Out*. Describe the information to be included on the forms, and the reasoning behind recording that information.

Equipment Inventory and Control Systems

Direct the participants in developing equipment inventory and control systems that will be of use in their home programs. Encourage them to share previous successes and current concerns, and use the discussion to highlight solutions and fresh perspectives. Include the following considerations:

- Requirements of a secure storage area.
- Means for organizing and stowing gear (duffel bags, plastic tubs with lids, boxes, etc.).
- Check-out/check-in systems to help ensure that program gear stays with the program.
- Reliable and secure method of recording information and storing it for future reference. Keep paperwork simple. Bound logs are not required. Records may be kept in any accurate media (bound logs, loose-leaf papers, computer files, etc.). Instructors might take more care making entries in bound volumes. Bound volumes may also prove more durable for long-term storage.
- Keep at least one backup log. This may be accomplished by copying the primary log to a computer file and storing it in multiple locations.

- Different ways of labeling equipment
- Incident log (refer to chapter 12, "Emergency Response, Rescues, and First Aid" of *Topping Out*)

Finish by reinforcing the importance of inspecting gear, keeping accurate records, and storing records in a secure place. Stress that at the end of each season, the records should be left with the ranger, the camp director, and/or the council climbing committee, or else these people should know the location of the records.

Subject: Spotting
Course: Climbing

Time Frame
90 minutes

Instructional Objectives
At the end of this session, participants will be able to

- Describe the purpose of spotting.
- Explain the safety concerns in spotting.
- Conduct trust activities to help reinforce effective spotting.
- Demonstrate proper spotting technique.

Training Aids and Equipment Required

- *Topping Out: A BSA Climbing/Rappelling Manual,* No. 32007
- *Project COPE* manual, No. 34371C

Materials for Distribution
None

Methods and Overview

- Minilecture: The Purpose of Spotting
- Group demonstration: Spotting Demonstration
- Group activity: Trust Activities
- Group activity: Spotting Effectively

Lesson Plan: Spotting

The Purpose of Spotting

Discuss the purpose of spotting, first encouraging participants to offer their own definitions and ideas, then offering the BSA definition—"*Spotting* means providing protection to a climber or boulderer to help prevent injury in case of a fall." Prevention of injury means that the head, neck, and upper torso in particular must be protected from hard contact with the ground. Spotting therefore focuses on these areas. Even if a climber, a spotter, or both of them end up flat on the ground, the spotting was effective if neither was injured.

Emphasize that effective spotting demands three main points:

- **Constant attention on the boulderer or climber.** Spotters must never waver in maintaining their attention on the person they are spotting.
- **Prepared stance.** Spotters must position themselves with one foot in front of the other, knees slightly bent, and hands turned upward, held at an appropriate level to protect the person being spotted. Fingers should be kept together.
- **Accept responsibility for the safety of the boulderer or climber.** Each spotter must be prepared to break the fall of a climber.

Topping Out chapter 8, "Climbing and Bouldering," details proper spotting technique step-by-step.

Spotting Demonstration

Demonstrate effective spotting using the proper verbal signals. If others in the group are trained spotters, they may assist in the demonstration. Show the proper way to spot a climber on a wall, then demonstrate a series of three trust leans, each with the person falling a greater distance. Explain that the trust lean is a confidence booster for the spotters and for the boulderers or the climbers, providing the feel of "spotting" another person's body weight.

Trust Activities

Lead participants in practicing a series of at least three trust activities (Trust Circle, Human Spring, Trust Duo, Trust Trio, Cookie Factory, etc.). Direct the leans so that they progress toward the actual "fall line" spotters can expect in the field. Alternate positions so that everyone experiences spotting and falling.

(For more on trust leans and trust activities, see chapter 3 of the *Project COPE* manual.)

Spotting Effectively

Transfer the controlled spotting experience of a trust lean to the activity of spotting someone who is bouldering or climbing. Use this exercise to highlight safety concerns including distractions, boredom, environmental factors, and the fact that a spotter cannot always predict when a climber will require assistance. Involve all participants both as spotters and as persons being spotted. (Spotting practice can be incorporated with the bouldering session that follows.)

Subject: Bouldering
Course: Climbing

Time Frame
90 minutes

Instructional Objectives
At the end of this session, participants will be able to

- Describe the purpose of bouldering.
- Demonstrate effective bouldering.
- Explain how to address the safety concerns in bouldering.

Training Aids and Equipment Required

- *Topping Out: A BSA Climbing/Rappelling Manual,* No. 32007
- Climbing wall or bouldering area, if available

Materials for Distribution
None

Methods and Overview

- Minilecture and group discussion: Bouldering Basics
- Demonstration: Safe and Effective Bouldering
- Group activity: Bouldering in Small Groups

Lesson Plan: Bouldering

Bouldering Basics

Facilitate a group discussion of bouldering—the practice of moves, holds, and reaches on rock faces, climbing walls, or other surfaces providing decent holds for hands and feet. The movement of boulderers may be up and down, but the general direction is horizontal across the climbing surface.

Mention that bouldering is an ideal way to practice techniques to be used during any climbing activity. Bouldering also helps to strengthen climbers mentally and physically so they can be more successful during belayed climbs and rappels. Bouldering may be incorporated into a climbing and rappelling program for teaching basic skills and for engaging the attention of groups of participants while they wait their turn.

Tell participants that falling is a natural part of the bouldering experience. Bouldering allows climbers to push themselves beyond what might be appropriate on a climb higher above the ground, knowing that a slip will result in a minor fall broken by spotters. To help minimize the chance of injury, all bouldering activities should be closely spotted and supervised.

Safe and Effective Bouldering

Key to BSA bouldering is the fact that a **boulderer's feet are never higher than his or her shoulder height above the ground,** and that boulderers are **always protected by spotters.** Climbing higher than the climber's shoulders must be done with the protection of a top-rope belay.

The primary safety concerns for bouldering are effective spotting and limiting the height of climbs. Before they begin, spotters should have a thorough knowledge of their responsibilities and necessary skills. A boulderer should not climb above his or her shoulder height—considered a reasonable distance from which one can jump down without risking undue injury. This distance will be much less for a small Cub Scout than

for a fully grown Venturer. One also should consider the physical fitness and abilities of the person engaging in the climbing activity.

Additional safety issues include:

- Minimizing distractions
- Creating a positive, supportive environment
- Ensuring the appropriateness of the site
- Discouraging showing off, competitive displays, or other inappropriate behavior
- Maintaining a proper ratio of spotters to boulderers (normally 2-to-1)
- Preventing the area from becoming overcrowded

Bouldering in Small Groups

Have participants form small working groups. Allow them to demonstrate and practice leading each other through bouldering activities. Direct the learners so that they all experience being a boulderer, spotter, and leader. Reinforce safety concerns and the purposes of bouldering. Encourage participants to actively consider how they will supervise activities in their own programs, especially in terms of creating a safe and supportive environment in which people can learn meaningful skills. Challenge participants to overcome such unexpected circumstances as supporting overweight, visually impaired, or hearing impaired participants.

Subject: Anchor Points and Systems

Course: Climbing

Time Frame
3 hours

Instructional Objectives
At the end of this session, participants will be able to

- Identify requirements of a safe anchor system.
- Explain and demonstrate the construction of a solid anchor system using active and passive protection
- Demonstrate the construction of a solid anchor system utilizing natural elements (trees, rock outcroppings, etc.).
- Describe appropriate anchor systems for a constructed facility such as a wall or tower.

Training Aids and Equipment Required

- *Topping Out: A BSA Climbing/Rappelling Manual,* No. 32007
- *Climbing Anchors,* by John Long; Chockstone Press, 1993
- Webbing, rope, and hardware for establishing various kinds of anchors. Likely gear you will need includes webbing; locking and nonlocking carabiners; passive and active protection; UIAA-, NFPA-, or CE-approved rope; and accessory cord for cordelettes
- Projector and slides showing anchors and the placement of protection
- Appropriate site(s) for practicing installing anchors

Materials for Distribution
None

Methods and Overview

- Minilecture: Safe Anchor Systems
- Minilecture: Natural Anchor Points and Wall/ Tower Systems
- Minilecture: Placement Techniques for Active and Passive Protection
- Group demonstration: Hands-On Anchor Systems

Lesson Plan: Anchor Points and Systems

Throughout this session, involve participants in establishing anchor points and developing anchoring systems. It may be productive to divide them into groups of two or three to work together solving various anchoring problems. Allow them to make mistakes and then work through the errors to find a reasonable solution. At all times monitor the safety of participants; if necessary, insist that they be tied in to safety lines before approaching exposed anchoring positions.

Whenever appropriate, reference chapter 6 of *Topping Out,* "Anchor Points and Anchoring Systems."

Safe Anchor Systems

Tell participants that anchors are the foundation of climbing and rappelling. Define *anchor point* (the tree, bolt, rock outcropping, or other solid location used as part of the anchor system) and *anchoring system* (all of the slings, carabiners, and other hardware and rope that act together as security for a climber, rappeller, or belayer), and stress the importance of reliable anchor points for establishing reliable anchoring systems.

These systems must support vigorous use by many climbing and rappelling participants and staff members, and must be built with proper technique and expertise.

Discuss in detail the following, using slides to illustrate each:

- Load distribution (solid, redundant, equalized, and no extension)
- Shock loading
- Direction of pull
- Small vs. large angles in the configuration of anchors

Stress that experience is the most important key to understanding and establishing solid anchor points and reliable systems. BSA climbing instructors and directors should practice frequently and keep themselves up-to-date in order to develop standardized anchor setups that ensure safe programs.

Natural Anchor Points and Wall/Tower Systems

Define natural anchor points (trees, rock outcroppings, boulders) and discuss qualities to look for when considering their use during climbing and rappelling activities. Keep the following guidelines in mind:

- A tree should have a diameter of at least 6 inches, be healthy, and be securely rooted. Check the security of trees by shaking them and by knocking on them to see if they are hollow. Avoid trees that seem hollow or in anyway way less than solid. Take steps to shield climbing ropes, hardware, and webbing from tree sap. Beware of shallow-rooted trees like aspen, which may be inadequate anchors.
- A boulder or rock outcropping should be large enough so that there is no movement even if great force is applied to it. A chockstone (a rock jammed in a crack) can be used as an anchor point only if it does not move at all when a great force is applied to it.
- Avoid running webbing or rope over sharp edges. Protect rope and webbing from edges that cannot be avoided.
- When securing runners to a tree, position them close to the ground to reduce potential damage. Place a doubled loop of webbing tied with a water knot around the tree and clip both end loops together with a carabiner.
- Push on and shake boulders to ensure that they are solid. As when tying off to a tree, placing a double loop of webbing low around a boulder or rock outcropping is usually safer than higher up on the anchor point where excessive leverage may threaten the system.
- Emphasize that natural anchor points are often easy to use, and that anchoring systems using them may be established with a minimum of equipment.
- Discuss the methods and criteria for establishing safe anchor points on towers and climbing walls. Use visual aids to illustrate various tower and wall setups.

Placement Techniques for Active and Passive Protection

Begin this session by defining *active protection* and *passive protection*. Show different pieces of hardware used as protection, and discuss their uses, their differences, and their similarities.

Discuss using at least three pieces of protection for each anchor system. Redundancy is the best policy. Stress the importance of backing up anchor points with redundancy. Explain what to look for when placing protection, including the following:

- Consider load, direction of pull, and strength of the anchor point. The goal is to make the placements simple and solid.
- Set a piece of protection by tugging on it.
- Proper placement in solid rock determines the strength of the protection.

- Hardware is made to be placed in certain orientations. Be familiar with the placement guidelines for each piece of anchoring equipment, and always install it correctly.
- Discuss inspection of fixed anchor bolts and hangers.
- Practice, practice, and then practice some more!

Using slides, illustrate and discuss placements for active and passive protection. Include information on various camming units, and on flexible vs. rigid stems on a spring-loaded camming device (SLCD). (If appropriate, use a projector and slides throughout this section to illustrate important concepts.) Stress these points about placing spring-loaded camming devices:

- Align the SLCD in the direction of the expected pull.
- Place the SLCD in accordance with the manufacturer's recommendations, which usually is about 10 to 50 percent. Avoid pulling cams to their maximum.
- Match a crack with an SLCD of the correct size. Never attempt to use a camming device in a crack that is too small or too large.
- Avoid using SLCDs in cracks that flare excessively. Prevent SLCDs from “walking,” thus making placement unsafe.
- Again, practice, practice, practice!

Hands-On Anchor Systems

At a climbing/rappelling site, demonstrate establishing various kinds of anchor points, and show how to set up different types of anchoring systems. These systems should be built for top-rope belays of climbers, and for attaching rappel ropes and belay positions, and should include the following:

- Tree anchor system
- Wall or tower system
- Boulder or rock outcropping
- Use of both active and passive protection

Question/Answer Session

Hold a question and answer session to confirm the knowledge of participants regarding anchors and anchor systems.

Subject: Belaying and Signals
Course: Climbing

Time Frame
90 minutes

Instructional Objectives
At the end of this session, participants will be able to
- Explain the safety components of a belay system.
- Explain and demonstrate the functional components of a belay, including position, friction, and anchor.
- Explain and demonstrate the verbal communication signals used when climbing and belaying.
- Identify the characteristics of belay devices.

Training Aids and Equipment
- Rope, harnesses (a variety of sizes), belay devices, carabiners (both locking and nonlocking), webbing (It is advisable to have one rope, two harnesses, a belay device, and anchor materials for each pair of participants.)
- Flip chart and markers
- *Topping Out: A BSA Climbing/Rappelling Manual,* No. 32007

Materials for Distribution
None

Methods and Overview
- Minilecture: Safety and Components of a Belay System
- Group discussion and activity: Belay Devices
- Minilecture and group activity: Communication and Signals
- Group demonstration: Functional Components of a Belay
- Group activity: Proper Technique and Use of Belay Devices

Lesson Plan: Belaying and Signals

Safety Components of a Belay System

Describe the purpose of belaying, stressing that it is one of the most important skills when climbing and rappelling. A belayer feeds out or takes up rope as the climber or rappeller needs it. The belayer must always be alert, and the belayer's attention must always be focused on the climber or rappeller. The belayer can direct a climber's route in order to reduce the danger of pendulum falls.

All BSA climbing and rappelling must be properly belayed. Belayers themselves may be stationed at either the top or the bottom of a climb or rappel.

Belay Devices

Discuss and show various belay devices including:
- Slotted plate (Sticht plate)
- Tube device
- Grigri

Guide participants as they practice attaching various belay devices to belay ropes, and point out the mechanics that make each device effective. Discuss the importance of friction as a force for belaying, and show how friction is created when a rope is bent through a belay device. Discuss the pros and cons of each device when used for belaying.

Communication and Signals

Communicating and signaling form the backbone of all climbing and rappelling activities. Signals exchanged between a climber or rappeller and a belayer help ensure the safety of everyone involved. Climbers, rappellers, and belayers have developed a standard set of signals to exchange information with each other. Participants should be introduced to these signals, and should use them in their correct sequences throughout BSA climbing and rappelling activities.

Rock!

Shouting "Rock!" is perhaps the most important of climbing's signals. It warns everyone that there is immediate danger from a falling object—a rock, a carabiner, an article of clothing, etc. Yells of "Rock! Rock! Rock!" warn of more danger than a single shout. Those hearing the warning should not look up, but must immediately protect themselves in the most efficient way possible—taking refuge under a ledge, moving quickly to the left or right, or becoming "small" under one's climbing helmet.

Talking in climbing areas should be limited to essential exchanges of information. Noise and the distractions of casual conversations can sometimes lead to dangerous situations for belayers and those on belay. Participants waiting their turn should curtail visiting and stop horseplay. If chattering becomes an issue, instructors should suspend climbing and rappelling activities until the situation has been remedied. If the day is too windy or the area too noisy for climbers and belayers to hear each other clearly, climbing and rappelling should be postponed or moved to another area.

BSA climbing instructors may have opportunities to work with participants who are hearing-impaired. Instructors should meet ahead of time with the adult leaders of those participants to develop appropriate strategies for ensuring safe communication throughout the course of a climbing or rappelling activity.

See chapter 7, "Belaying and Belay Signals," and chapter 8, "Climbing and Bouldering," in *Topping Out* for accepted verbal commands used in belaying, climbing, rappelling, bouldering, and spotting. (Use a flip chart to write out signals.)

Verbal Signals for Climbers and Belayers

The signals between a belayer and a climber or rappeller are a sequence of clear commands and answers of just a word or two. Each command is always followed by a response of acknowledgement to ensure that the meaning of the command was heard and correctly understood. Each word should be enunciated loudly and slowly, especially if the wind is blowing, distance is a factor, or a ledge or overhang prevents a belayer and climber or rappeller from seeing each other. If several participants are climbing or rappelling in the same area, it is good practice for each person to add the name of his or her partner after each command.

Signals for Belaying Climbers

Generally accepted signals exchanged between a climber and belayer include the following, listed in a normal sequence:

Climber	Belayer	Meaning
"On belay?" →		"Is the belay ready?"
	"Belay on." →	"Your belay is ready."
"Climbing." →		"I'm ready to climb."
	"Climb" or "Climb on." →	"Go ahead."
"Slack." →		"I need some slack in the rope."
"Up rope." →		"Take in the loose rope."
"Falling!" →		"I'm falling! Brake the belay rope!"
"Tension." →		"Hold the rope tightly in case I fall."
	"Got you." →	"There's tension on the rope."
"Ready to lower." →		"Lower me."
	"Lowering." →	"I'm letting you down now."
"Rock!" →	"Rock!" →	"Beware of falling objects."
"Rope!" →	"Rope!" →	"Rope being thrown down."
"Clear down" →		"It is safe for the rope to be thrown down."
"Off belay." →		"I'm in a safe place and no longer need a belay."
	"Belay off." →	"I'm no longer belaying you."

Signals for Belaying Rappellers

The verbal signals rappellers use are a little different from those used by climbers, but the basic information they share is the same.

Rappeller	Belayer	Meaning
"On belay?" →		"Is the belay ready?"
	"Belay on." →	"Your belay is ready."
"Rappelling." →		"I'm ready to start down."
	"Rappel on." →	"Go ahead."
"Falling!" →		"I'm falling! Brake the belay rope!"
"Off belay." →		"I am in a safe place and no longer need a belayer."
	"Belay off." →	"I'm no longer belaying you."
"Off rappel" or "Off rope." →		"The rope is free of hardware and is ready for the next rappeller."

Divide the group into pairs and have them practice the signals during mock climbing and rappelling scenarios.

Functional Components of a Belay

Use a ground school (see the lesson plan called "Climbing and Top-Roping" in this book) or mock belay to demonstrate the following principles:

- **Positioning.** To prevent the belayer from being pulled off balance, belayers must be positioned in line with the potential falls of climbers or rappellers. The position should also allow belayers to observe the people they are protecting, and to notice hazards such as falling rocks or equipment. Each belayer must maintain a ready stance that is secure to prepare for any possibility.
- **Anchoring.** All belayers should be properly anchored to prevent them from being pulled out of position by a climber or rappeller who falls. Demonstrate how to anchor a belayer by clipping a locking carabiner to the harness. A belayer on the ground may be secured to a single anchor point—one tree or one boulder, for example. There should be no slack between the anchor and the belayer. A belayer at the top of a route must be anchored to a reliable system that is backed up to guard against failure.
- **Friction.** The sharper the angle at which a rope is bent through a belay device, the greater the friction and thus the stopping power.

In addition to the standard belay scenarios described above, climbing directors may encounter one of several acceptable variations, including the following:

The belays at some climbing areas are set up so that the belay device is connected directly to an anchor rather than to the belayer's harness. Belayers must still be anchored and connected to the belay device to prevent them from falling, being pulled out of position, or having the belay device moved out of their reach.

In some climbing programs, a belayer anchored on the ground in the standard way is provided a backup anchor in the form of another person gripping the belayer's harness and using body weight to hold the belayer in place. An additional participant can be assigned the task of handling the loose rope, a job that keeps excess rope out of the way and helps occupy the time and attention of one more person.

Belaying Scenario—Proper Technique and Use of Belay Devices

Set up a belaying exercise at a climbing/rappelling site. Allow participants to serve both as belayers and as instructors overseeing the efforts of belayers. If possible, offer several scenarios so that participants get hands-on experience with a variety of belaying options. For example, use various kinds of belay devices, position belayers at the top of a route and then at the bottom, etc.

Many styles of belaying are acceptable, as long as a brake hand is always on the rope. As participants take part in belaying activities, stress these points:

- The difference between the guide hand and brake hand.
- The brake hand must never leave the rope. Be prepared at all times to brake the fall of a climber or rappeller.
- Belaying is a fluid motion that demands synchronization.
- A belayer can increase friction on the rope by pulling it against the hip/buttock area. That helps ease the work load for the brake hand.

Subject: Climbing and Top-Roping

Course: Climbing

Time Frame
14 hours

Instructional Objectives
At the end of this session, participants will be able to

- Demonstrate facilitation of a top-rope climbing program.
- Demonstrate appropriate techniques of climbing.

Training Aids and Equipment Required

- *Topping Out: A BSA Climbing/Rappelling Manual,* No. 32007
- *Climbing* merit badge pamphlet, No. 35873
- All equipment necessary for setting up and conducting a climbing and rappelling program

Materials for Distribution
None

Methods and Overview

- Group discussion: Benefits and Risks of Climbing and Rappelling
- Group discussion and demonstration: Ground School
- Minilecture, group discussion, and demonstration: Climbing Techniques

Lesson Plan: Climbing and Top-Roping

Active participation is a key component of this portion of the course.

Benefits and Risks of Climbing and Rappelling

Discuss with participants the power of learning how to climb and rappel, and the positive effects these skills have on the individual, including

- Overcoming personal barriers and fears
- Gaining skills and taking on new responsibilities
- Identifying and minimizing the risks of climbing and rappelling (safety consciousness)

Engage participants in a discussion of how learning how to climb and rappel has affected them personally.

Ground School

A ground school takes place just before participants begin climbing, rappelling, and belaying. It serves as a reminder and as reinforcement of issues of importance to the safety and effectiveness of everyone involved, and as an opportunity for participants to find answers to any questions or concerns they may have.

This is also a good opportunity for NCS instructors to model teaching methods participants may find appropriate when they teach BSA climbing instructors and participants at their home programs. Refer to chapter 8, “Climbing and Bouldering,” and chapter 9, “Rappelling,” from *Topping Out* whenever appropriate.

In the classroom or, preferably, at the climbing/rappelling site, engage participants in a discussion and demonstration of issues and techniques that should be reviewed before they begin climbing and rappelling activities. Among the concepts to review during the ground school are

- Verbal signals for climbers and belayers
- The qualities of static vs. dynamic ropes as they relate to climbing and belaying
- Equipment and equipment checks (helmets, harnesses, hardware, climbing shoes, tape, chalk)
- Ropes, anchors, and belay systems
- Responsibilities of belayers
- The dynamics of climbing (three-point stance, basic holds for hands and feet, emphasis on the fact that leg muscles tire less easily than arm and shoulder muscles and thus should bear most of a climber's weight)
- Actions to be taken by climbers, rappellers, and belayers during and after a fall
- Safety pointers:
  —Never climb alone.
  —Stay within your abilities.
  —Do not climb higher than shoulder-height without a belay, and even then make sure you are properly spotted.

Throughout the ground school, encourage participants to ask any questions they may have and to bring up any concerns. Make it clear that they are welcome to speak up within the group setting or to approach you privately at any time. Conclude the ground school with exercises designed for loosening up before climbing and rappelling activities begin.

Climbing Techniques

If you have not already done so, have the participants move to the climbing/rappelling site for the remainder of this lesson plan. Develop the sequence of activities to involve participants in all aspects of climbing, rappelling, and belaying on both natural and artificial surfaces (towers, walls, bouldering walls, etc.). Where appropriate, encourage participants to take on teaching roles, acting both as BSA climbing directors and as BSA climbing instructors. Among the skills and issues to address are:

- Environmental conditions and Leave No Trace principles
- Ensuring the safety of the climbing/rappelling site
- Preparing participants (checking harness security, appropriateness of attire, etc.)
- Three-point stance
- Handholds (cracks; ledges; jugs or buckets; nubs; clings; pressure hold; finger, fist, and hand jams)
- Footholds (toe and foot jamming, edging, smearing, toe holds)
- Combination holds (mantling, liebacks, chimneying, counterbalance)
- Down climbing
- Resting while climbing
- Procedures to follow if a climber or rappeller is injured and is responsive or nonresponsive
- Examples of the climbing classification system
- Bouldering and spotting (In addition to a demonstration, involve participants in these activities and discuss the roles bouldering and spotting can play in a climbing/rappelling program.)

Subject: Rappelling
Course: Climbing

Time Frame
From 2 hours to a full day, depending on participant needs and facility opportunities

Instructional Objectives
At the end of this session, participants will be able to

- Describe the value of rappelling to a climbing/rappelling program.
- Explain safety considerations for rappelling.
- Demonstrate the ability to rappel and to teach and supervise rappelling.

Training Aids and Equipment Required

- *Topping Out: A BSA Climbing/Rappelling Manual,* No. 32007
- *Climbing* merit badge pamphlet, No. 35873
- All equipment needed for setting up and conducting a climbing/rappelling program.

Materials for Distribution
None

Methods and Overview

- Demonstration: Correct Rappelling Technique
- Minilecture and group discussion: Rappelling Details
- Minilecture: The Where and How of Safe Rappelling
- Group activity: Hands-On Rappelling and Belaying

Lesson Plan: Rappelling

Correct Rappelling Technique

The course instructor or someone assigned by the instructor demonstrates good rappelling technique. This initial demonstration should provide a frame of reference for anyone unfamiliar with rappelling or, more likely, not fully aware of BSA rappelling methods.

Here and throughout the remainder of the lesson, highlight the safety features of the belay, the effective use of a rappel device, and good form in descending. As a reference, use chapter 9, “Rappelling,” from *Topping Out* whenever appropriate.

Rappelling Details

Explain that modern rappelling serves many purposes and can be accomplished with a variety of devices. BSA guidelines include the use of several acceptable types of rappel devices and static rope with a breaking strength rating of at least 22.2 kiloNewtons (about 5,000 pounds) when new. Discuss friction and the role it plays in rappelling. Quick rappels, rappels that involve bouncing, body rappels, and nonbelayed rappels are not appropriate for BSA climbing and rappelling activities. Do not discount these belaying techniques—they may have their place outside of BSA programs—but clear up any questions concerning the BSA’s rappelling standards and emphasize that it is essential for BSA climbing directors to maintain those standards during any BSA climbing and rappelling activities.

Rappelling may be done with either a single rope or a double rope. For novice climbers, a double-rope rappel may be most appropriate; two ropes will generate more friction in the rappel device, and a rappeller will descend more slowly than when using a single rope. A slower descent discourages rappellers from bouncing down the rock face and putting unnecessary strain on anchors and/or belayers.

- A rope to be used for a single-rope rappel can sometimes be attached directly to an anchor point such as a tree, using the coil-wrap/tensionless rigging method. Otherwise, tie appropriate knots to attach the rappel rope to the anchor system. Anyone using a single-rope rappel must be belayed with an independent belay rope.
- To anchor a rope for a double-rope rappel, locate the middle of the rope and tie a super eight or two separate figure eights on a bight. Clip the loops formed by the knot to the anchor system. (Anyone using a double-rope rappel must be belayed either with a fireman's belay or an independent belay rope.)
- Explain acceptable BSA belaying techniques that require an independent line belay.
- Explain how a fireman's belay can be used.
- Explain the autoblock and its use as an addition to the brake hand while rappelling.

The Where and How of Safe Rappelling

Point out the important characteristics of sites to be used for teaching rappelling and conducting rappelling activities. There should be clear and safe access to the top and base of a route (safety lines may be required at the top), failproof anchor points and anchor systems, and appropriate difficulty levels to match the skills of the participants.

All rappellers must be belayed with an independent belay rope. Ensure the safest program possible by informing participants of safety issues, and then insisting that they pay attention to detail. Encourage participants to make it a habit to do the following before allowing any person to rappel:

- Check anchors, rigging, and the rappel site.
- Check the positions of rappellers, belayers, staff members, and anyone else at the top of a rappelling route. Every person within a few yards of the edge must be protected with a safety line (tether) or belay rope.
- Check each rappeller's attire and gear. Gloves should be available, and the on-site climbing director will determine whether gloves are optional or required. Some directors require gloves to help minimize the chance of injury if a person goes too fast. Remember, however, to teach the proper technique, which is not to descend too quickly.
- The rappel device must be properly attached.
- Long hair must be tucked or tied back, jewelry removed, loose clothing secured, and items removed from pockets. Explain why hair, clothing, and jewelry pose a hazard if they become ensnarled with a rope and/or rappel device.
- Check the location of instructors. Instructors should be stationed at the top and the base of the rappel route to monitor activities and to be in position to provide immediate assistance.
- Check the belay. The independent belay line should be tied to the harness according to the manufacturer's recommendations. A two-rope rappel must have a fireman's belay, an additional independent belay line, or both. Belay technique must be safe and effective. The belayer should be positioned in line between the anchor system and the rappeller. Remind participants and staff members to monitor belay lines to prevent them from becoming tangled.
- Before rappelling activities begin, each participant should have a thorough understanding of the appropriate commands for being belayed while rappelling, for attaching the rappel device to the rappel rope, and for making an appropriate descent.
- Check to make sure site-specific safety equipment is conveniently located.

Hands-On Rappelling and Belaying

Regardless of their previous experience, involve all participants of this program in the actual experience of rappelling and belaying rappellers. This should be a hands-on experience. A possible sequence for teaching might be this:

- Check clothing, hair, jewelry, gloves, and helmets. Tuck, fasten, attach, remove, or make other adjustments to prepare participants for rappelling.
- Explain that belayer/participant names, rope color, or route numbers may be added to commands where there are multiple rappelling sites in the same areas.
- Divide participants into groups of three or four to practice verbal commands for rappellers and belayers. Be certain that all participants know the commands and have actually practiced them before approaching the rappel route. Instruct participants on how to respond to the essential command, "Rock!" They should duck their head and use their helmet to protect their head as much as possible. **Don't look up!**
- Practice attaching the rappel device to the rappel rope. Lead participants through a practice of proper rappelling techniques on level ground.
- Prepare for rappelling. Discuss edge technique, attachment to safety lines, body stance as a rappeller goes over the edge of the cliff, and foot placement during the descent. Caution participants to avoid dropping gear or inadvertently kicking rocks over the edge, and to be prepared to shout "Rock!" if anything does present an immediate hazard to anyone below.

From *Climbing/Rappelling National Standards*

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 and static climbing ropes must be UIAA-, CE-, or NFPA-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; every climbing rope must have a minimum diameter of 10.5 millimeters. All ropes and nylon webbing must be new when procured. Use of three-strand rope for climbing or rappelling is prohibited. Three-strand (multiline) rope ½ inch or larger in diameter may be used for lobster claws, thethers, and hand lines on low- or high-course elements. Webbing must be designed for climbing and must have a minimum breaking strength of 15.6 kiloNewtons (3,500 pounds) when new. Anchor systems must have a strength of at least 22.2 kiloNewtons (5,000 pounds).

Subject: Effective Teaching
Course: Climbing

Time Frame
60 minutes

Instructional Objectives
At the end of this session, participants will be able to

- Explain age-appropriate climbing and rappelling activities and teaching methods.
- Create lesson plans to communicate and teach specific objectives pertaining to a BSA climbing program.
- Explain the learning process and methods of teaching climbing and rappelling.
- Identify signs of fear in climbing and rappelling participants.
- Identify appropriate actions for helping participants overcome fear.

Training Aids and Equipment Required

- *Topping Out: A BSA Climbing/Rappelling Manual,* No. 32007
- *Climbing* merit badge pamphlet, No. 35873
- Flip chart and markers

Materials for Distribution

- Climb On Safely Training Outline, No. 20-101B

Methods and Overview

- Minilecture: Overall Considerations of Teaching
- Minilecture: Teaching Methods
- Minilecture, group discussion, and brainstorming: Identifying and Overcoming Fear
- Group activities: Hands-On Teaching Exercise

Lesson Plan: Effective Teaching

Instructors should reference chapter 2, "Safety and Leadership," and chapter 13, "Staffing and Instructor Training," in *Topping Out* whenever appropriate.

Overall Considerations of Teaching

Directors and instructors have the responsibility to instruct participants in the proper techniques to be used for climbing, rappelling, and belaying, both to ensure the safety of those participants and to maximize their enjoyment of those activities. Only through constant, careful instruction can participants be expected to learn to challenge themselves and to reach their maximum potential.

Age- and Skill-Appropriate Activities

Climbing and rappelling activities should be geared to the age, skill level, and maturity of participants. Almost every Scout and Venturer can take part in some degree of climbing and rappelling activities, regardless of age, size, or physical ability. Refer participants to the age-appropriate climbing and rappelling guidelines in the Climb On Safely Training Outline. Review the guidelines one at a time and ask if participants have any questions.

Use common sense in establishing the parameters of a climbing and rappelling program. Through careful observation of participants and interaction with them, directors can gather information that will help them form a competent opinion of the relative strengths, weaknesses, and overall maturity of those who want to take part in climbing and rappelling. Equally important may be discussing expectations with each group's adult leaders, ideally before the group arrives at the climbing/rappelling site. Input from adult leaders can be especially helpful when participants are very young (Cub Scouts, for example) or immature. Consider the equipment at a site, and be certain that harnesses, helmets, and gloves are correctly sized to fit younger participants and those with smaller body frames.

Leaders of groups that include participants with disabilities can inform directors of ways that the climbing/rappelling experience may be managed to make it satisfying and safe for everyone. Among the issues to discuss are the appropriate ratio of instructors and leaders to participants with disabilities, any special equipment required, and strategies for involving each participant to the fullest of his or her ability and interest. Participants with a disability should be asked what they *can* do. Forget about their "dis" ad focus on abilities.

Teaching Methods

Participants involved in climbing and rappelling challenge themselves intellectually to understand how certain tasks are to be done, and physically to carry out those tasks. They need to become familiar with ropes, carabiners, harnesses, and the other gear of the sport. They must learn to rely on belayers, and may need to cope with their own apprehension and fear.

The teaching methods tailored to the needs of a particular group should include demonstrations and hands-on application—it is not sufficient merely to explain to participants what they are to do and then expect them to be successful. Talking about rappelling, for instance, is nowhere near as effective as showing participants how it should be done and then guiding them through the process of tying in, securing the rappel device, exchanging signals with a belayer, and then making a successful descent.

Directors and instructors should first address climbing and rappelling participants at a level they can easily understand. With participants feeling comfortable and confident, directors and instructors can move them through a sequence of skills until each person is challenged—and finds success—to the greatest and safest extent possible.

Encouragement and praise are helpful. When a participant has completed a skill, positive reinforcement can encourage him or her to continue on.

Identifying and Overcoming Fear

Fear is often present in beginning climbing and rappelling participants. A participant's fear may be brought about by the presence of height, the likelihood of falling, the potential of being injured, or unfamiliarity with equipment and basic skills.

Some degree of fear can be desirable and useful. It helps participants ensure that their actions are appropriate and are conducted as safely as possible. However, some participants may experience fear at a level that becomes detrimental. Directors and instructors should strive to identify that kind of fear and help a participant overcome it, turning a hindering fear into a useful and manageable tool.

The Many Faces of Fear

Fear can present itself in many ways. The most obvious occurs when participants announce they are afraid and refuse to move. More subtle signs include, but are not limited to, agitation, irritability, excessive perspiring, and crying. Inappropriate laughter may be a way of masking fear. Procrastination (including constant talking or asking numerous irrelevant questions) may be used to delay engaging in an activity. Directors and instructors observing these signs should interact with participants to determine the level of their fear and to fashion appropriate responses that will help each person overcome fear. Keep "challenge by choice," discussed later in this lesson plan, in mind at all times when conducting climbing and rappelling activities.

Signs of Fear. Overactive joking and horseplay may indicate an attempt to hide fear. A sudden strange illness or injury may be fear-invoked to avoid participation. If the illness or injury is not obvious, ask the participant to remain in the area as an observer. It is amazing how often the illness goes away when the learner gets caught up in the excitement of the activity.

Have the group brainstorm a list of some signs that a participant may be experiencing an abnormal fear response. List these on the flip chart as they are discussed. Be sure to include at least the following:

- Avoidance of eye contact, consistently standing at the periphery of the group, consistently being the last participant to undertake an event
- Overly boisterous behavior
- Persistent questions about trivial details
- Unexpectedly dramatic reaction to a minor bump, scrape, or similar injury
- Physical signs of serious anxiety (voice change, sudden increased sweating, trembling)

After discussing these *signs* of fear, ask the group to discuss some potential approaches to participants exhibiting them. As a minimum, be sure to discuss the following:

- Right from the outset, *acknowledge* the fear. ("You're right, Jim, rappelling that steep face can be tricky.") Because fear is rarely rational, it cannot be explained or rationalized away.
- Recognize that the *fear of failure,* for some participants, may be a major concern. While a participant might not be afraid of falling, for example, a Scout might be very afraid of having friends see him fall. This is a particular concern if several participants already have completed an activity successfully. If the leader can control the sequence of participants attempting a climb or rappel, it may be best to have those who seem likely to complete events swiftly and easily *not go first*.
- Break activities that are giving a participant difficulty into a series of smaller steps, recognizing success in each: Can a climber reach the next hold? Can the climber reposition his feet to reach the next hold?
- Right from the start it is critical that staff members establish an atmosphere of trust with all participants. A fearful participant can be helped only if he or she already has developed a strong trust in the staff member.
- If a participant is having a significant anxiety episode that does not readily respond to some of the above measures, *immediately grant permission to leave the area*. Climbing and rappelling are challenge by choice activities. Many other positive benefits can accrue from participation, and it would be highly inappropriate to negate these benefits by keeping a participant in an environment that is causing significant emotional discomfort. First and foremost, climbing and rappelling must be fun!

Specific Steps. The climbing staff member should work with an individual who is having difficulty overcoming fear. Reassurance that fear is normal and acceptable and that the hazards of the event are actually minimal can best be done on a one-on-one basis.

Stress can be both positive and negative. Positive stress is the competitive spirit that drives one to keep trying. Athletes use stress as an incentive to try harder and do better. The climbing staff member should encourage the learner to try the activity. Start with one step at a time. Remember not to pressure participants into something they don't want to do. All you should ask is that they try.

How to Overcome Fear

The philosophy of "challenge by choice" provides clear guidelines for involving participants in climbing and rappelling activities. Advise each group that all participants freely choose the activities in which they wish to take part, and the degree of their participation. Participants are never required to justify their choices, nor will they ever be coerced to participate in any activity. Participants can be gently encouraged to extend themselves and accept new challenges, and they can be offered opportunities to learn the skills that will enhance their experience. Ultimately, though, it is up to each participant to decide which challenges to undertake and to what extent.

Directors and instructors setting out to help a participant overcome fear will be most successful by establishing a one-on-one relationship, tuning out distractions and outside influences while focusing fully on the participant and the immediate situation. Always use a calming voice. Remind the participant that safety is foremost in the minds of everyone present, and that everything possible has been done to ensure the safety of each participant. Assure the participant that there is no need to continue an activity or to justify a decision or feel embarrassed about it. At the same time, offer supportive encouragement to take an additional step, challenging a participant to act despite any fear and, perhaps, experiencing the satisfaction of achieving more than the participant had thought possible.

To deal effectively with participant fear, directors and instructors should try a variety of strategies in search of the right one for a given situation. Among the possibilities are:

- One-on-one conversation with a participant
- Offering support and guidance while talking a fearful participant through a series of actions such as moving one foot to a new hold and then one hand
- Demonstrating the skill a participant needs to move ahead
- Describing a particular skill while it is being demonstrated by another participant or instructor

When it comes to helping others overcome fear, experience is a great teacher, but so is innovation. Encourage participants to draw upon methods that have worked for them in the past, but also to be open to new ways of approaching situations involving participant fear.

It may help to conduct a group discussion to elicit from group members accounts of their successes in helping participants overcome fear in various types of activities. Encourage everyone in the group to note the variety of techniques. Remind participants that as part of the National Camping School curriculum, they will have opportunities to teach, and that they may discover the importance of having given thought to addressing the issue of participant fear.

Hands-On Teaching Exercise

Teaching others is an essential component of a BSA climbing director's duties. Directors should teach the participants of the course they manage, as well as the BSA climbing instructors and instructors-in-training under their supervision. Because the ability to teach is so important, every participant in the NCS course should be observed while teaching instructors, instructors-in-training, and potential participants.

The teaching abilities of participants can be observed and evaluated throughout the week of NCS training, both in planned and spontaneous settings. At various times, consider asking participants to take on a teaching role, instructing other participants in the skills or ideas currently being discussed (knot tying, safety issues, etc.). The abilities of participants to interact with others and to instruct them during these informal situations may aid in the evaluation and enhancement of their teaching abilities.

Another option for practice teaching is to establish stations that allow participants to act as teachers of different subjects and in various circumstances. Stations may include:

- Leading warm-up exercises
- Instructing knots
- Instructing belay techniques
- Instructing the tying of harnesses
- Instruction of climbing techniques
- Instruction of rappelling techniques
- Instruction and demonstration of setting up ropes for belays and rappels

Many other teaching situations can be set up. Let your imagination be your guide as you strive to make each situation realistic and worthwhile. The point of the exercise, in whatever form it takes, is to allow all participants to be observed in situations where they are teaching others in the same manner they will use in their home programs.

Subject: National Climbing Standards and Legal Liabilities

Course: Climbing

Time Frame
90 minutes

Instructional Objectives
At the end of this session, participants will be able to

- List areas of the climbing and rappelling program that may present health and/or safety problems.
- Describe specific methods of protection that should be implemented.
- Identify national climbing standards for which the BSA climbing director and instructors are responsible.
- Describe the purpose and procedures for the climbing program visitation.

Training Aids and Equipment Required
None

Materials for Distribution

- Climbing/Rappelling National Standards, No. 20-102 (current year)
- *Topping Out: A BSA Climbing/Rappelling Manual,* No. 32007
- Non-Scout Use of Scout Facilities (from *Topping Out)*
- Hold-Harmless/Release Agreement (from *Topping Out)*
- Letter of Agreement Establishing Camp Use (from *Topping Out)*

Methods and Overview

- Minilecture and group discussion: Climbing/Rappelling National Standards
- Minilecture: Legal Liabilities and Developing a Plan of Supervision
- Minilecture: Elements of Negligence
- Minilecture: Standards of Care
- Minilecture: Medical and Release Forms for Climbing Activities
- Minilecture: Responsibilities and Procedures in Case of Emergency
- Group activity and discussion: Answers to Frequently Asked Questions

Lesson Plan: National Climbing Standards and Legal Liabilities

Climbing/Rappelling National Standards

Direct the attention of participants to their copies of Climbing/Rappelling National Standards. Point out that many of the climbing and rappelling standards are similar to the national standards for Project COPE.

Explain that the purpose of standards is to help ensure that participants, leaders, and instructors have safe and productive experiences. The Boy Scouts of America is the first national youth-serving organization to develop specific national standards to help assure quality climbing and rappelling facilities and programs. Emphasize that these standards represent the minimum level of performance expected. Some BSA local councils, as well as local, state, and federal agencies, may impose higher standards.

Review the standards one at a time and discuss any standards that participants have questions about or do not understand. Pay particular attention to standards that might be difficult to meet, and share ideas on how to meet them.

Explain that mandatory standards must be met to open a climbing facility or site. Mandatory standards directly relate to health and safety; quality standards are desirable, and a high percentage of them also must be met.

Legal Liabilities and Developing a Plan of Supervision

Climbing and rappelling activities often have a high degree of perceived risk. If the activity is properly conducted and facilities and equipment are in good condition, actual risk should be nearly nonexistent. However, administrators and BSA climbing directors are charged with the responsibility for taking appropriate action to reduce the likelihood of injury to participants, staff members, and onlookers. Lead a discussion of the following issues:

- Administrators and directors must have a clear plan of supervision. This plan should identify who is in charge of each climbing and rappelling activity—safety orientation, checking knots, maintaining overall control of participants, overseeing climbing, rappelling, belaying, etc. The plan should include methods of supervision and any specific responsibilities, such as identifying dangerous conditions (loose rock, inclement weather, darkness, fatigue, crowding, inadequate anchors, etc.) and the skill and maturity level of the participants.
- Administrators and directors must also see that there are clear safety rules. Ask participants to discuss rules they will impose in their programs. Look for the following:
  - — No climbing or rappelling without a lead climbing instructor or climbing director present.
  - — Properly fitted helmets must be worn by staff members and participants, and by nearby onlookers whenever there is a potential danger of falling objects (safety zone).
  - — No one may step on a rope, webbing, or any other climbing gear.
  - — No jewelry may be worn; loose clothing must be secured and long hair tied back or tucked.
  - — Proper climbing signals should be used.
  - — Belayers must never release a rope until the climber or rappeller has signaled, “Off belay.”
  - — Belayers must be in line with their anchor system and the direction of a potential fall.
  - — Whenever participants are climbing or rappelling, there must be a suitable first-aid kit on-site and a means of emergency communications (radio, portable telephone, etc.).
  - — No horseplay or inattentiveness to instructors.

Stress the importance of having a few clear rules that provide the parameters of safety. Point out that too many little rules will be difficult to remember and to follow. Directors and instructors should instruct in such a way that participants in climbing and rappelling programs understand that following the rules is essential for their own safety. Rules must be enforced; listing rules but then failing to uphold them may expose a program to liability. Directors and instructors must also model good behavior by always following the rules themselves.

BSA climbing instructors should participate in a minimum of three days of training in climbing and rappelling and should not be issued certificates of completion of training unless the director in charge of their training is confident that they are ready to oversee BSA climbing and rappelling activities. Whenever possible, training should be conducted at the site or facility that instructors will be expected to operate.

The BSA climbing director is responsible for maintenance after notice has been given verbally or in writing. Once an administrator discovers or has been made aware of a situation that is hazardous, that knowledge constitutes *notice* and he or she must take action by correcting the situation before further climbing or rappelling is allowed.

Otherwise the council and the director may be held liable in the event of an accident. The same is true even if the director, while properly doing the job, *should have known* of the hazardous situation. BSA liability insurance covers climbing directors and instructors above the limits of their personal insurance policies.

Elements of Negligence

For negligence to be proven, all four of the following elements must exist:

- There must be a duty owed by the person in charge. When directors and instructors invite young people and adults to participate in climbing and rappelling activities, those directors and instructors owe those participants a duty to provide current instruction in a reasonable and prudent manner.
- The duty must be breached by not performing the standard of care required for the activity and the environment. Participants must not be exposed to any unreasonable risks. If the risk was "foreseeable" and steps were not taken to help prevent injury, the director and council may be held liable.
- Proximate cause. The injury must be the result of an act or a failure to act. Specific or direct supervision should be provided whenever youth are engaged in activities unfamiliar to them, or in which they require instruction and assistance. According to legal expert Betty Van der Smissen, J.D., Ph.D., 80 percent of activities related to outdoor programs allege a lack of supervision.
- Actual damage must be sustained as a result of the accident.

Standards of Care

The standard of care required of administrators, BSA climbing directors, and BSA climbing instructors is that of reasonably prudent trainers. By accepting a task, whether paid or not, you hold yourself out as being competent. The standard of care is the same regardless of whether participants are beginners or experienced—if you put any participant in an activity beyond his or her capability, you can be held liable. You are responsible for adhering to current BSA climbing standards.

At least one person at a climbing/rappelling site must have first-aid training. The training should be specifically oriented to the activity in question—in this case, climbing and rappelling.

Emergency procedures should be written down and practiced by instructors and staff members. There should be specific procedures for dealing with the types of emergencies most likely to occur. Procedures should include who does what, when actions are to be taken, how they are to be carried out, and the sequential order of making contact with appropriate persons and agencies outside of the program.

Medical and Release Forms for Climbing Activities

The camp health officer will determine who will be responsible to review the medical history of every participant and be aware of any medical conditions that might require special attention during any climbing or rappelling experience. (Refer to chapter 2, "Safety and Leadership," and the "Resources" section in *Topping Out*.) Point out that the Medical Information/Informed Consent form in *Topping Out* is a tool for use when conducting climbing and rappelling activities other than during summer camp.

At camp, each participant will have a medical form with signed parental consent on file with the camp health officer. Each director will need to establish procedures for reviewing these forms at the home camp. It would be ideal to have samples of completed forms located on-site while participants are involved in the climbing/rappelling program.

When non-Scouts use the program, implementation of the Non-Scout Use of Scout Facilities procedure is required. The "Resources" section in *Topping Out* has an example of the Hold-Harmless/Release Agreement required for non-Scout activities on BSA property. In addition, the group will need to obtain a certificate of insurance in the amount of $1 million with both the local council and the National Council named as additional insureds. Refer to *Topping Out* for the standards for medical requirements for outside groups.

For special circumstances, such as the use of a BSA climbing/rappelling area by a small nonprofit group under the leadership of a trained BSA climbing instructor, or use by Scout families, the certificate of insurance requirement may be waived if *all* participants and *both* parents (if the participant is under age 18) sign a Parental Informed Consent Agreement and Hold-Harmless/Release Agreement. See *Topping Out* for examples of these forms.

Responsibilities and Procedures in Case of Emergency

Recognize that the potential for being sued always exists. Lawsuits cannot be prevented by eliminating high-adventure activities. We have an obligation to BSA youth to provide activities that require higher levels of knowledge and skill.

We are accountable for conducting programs and maintaining areas and facilities so that "unreasonable risk" is not present in climbing and rappelling activities. This requires the best and most current practices. Rather than becoming obsessed with concerns about liability, directors, instructors, and administrators of climbing and rappelling programs must genuinely care about each participant's safety.

People sue when something irritates them. We must go out of our way to establish good public relations with everyone involved in our programs. Parental permission is a good informational vehicle for describing the nature of programs, and should be used even though it is not effective for waiving liability.

If an accident does occur, promptly notify the camp director or the Scout executive. The Scout executive is the council's spokesperson for any significant media coverage. Media inquiries should be referred to the Scout executive. Follow-up action should include regular visits with any person injured during a program activity.

Discuss the following forms, which can be found in *Topping Out*:

- Non-Scout Use of Scout Facilities
- Hold-Harmless/Release Agreement
- Letter of Agreement Establishing Camp Use

Answers to Frequently Asked Questions

Organize participants into groups of four to six and assign one or two questions to each group. Ask them to come up with answers to the questions, and have them present their answers to the entire group. Sample questions and potential answers include:

Question: A non-Scout group wants to use the council's climbing tower and equipment, and offers to provide its own instructors. What should you do?

Answer: Explain that you are unwilling to turn over your equipment because of the need to keep an accurate log of the history of its use. The non-Scout group may use its own equipment and instructors. In no case will a non-Scout group be allowed to use a BSA climbing or rappelling site without first signing a Hold-Harmless/Release Agreement and the local council's Use Agreement, and presenting a certificate of liability insurance in the amount of at least $1 million.

OR

The non-Scout group may use the council's climbing site or facility and climbing equipment with the supervision of a BSA climbing director or a BSA climbing instructor who is at least 21 years of age.

Q: A Scout unit wants to use a BSA climbing facility and instructors from another organization. What do you do?

A: If requested, provide the outside organization with a Hold-Harmless/Release Agreement and a certificate of liability insurance. Be certain that the guidelines of Climb On Safely will be followed. (The unit or outside organization must provide the climbing instructors, climbing ropes, and other equipment for their activities.)

Q: A Cub Scout pack asks to go to a climbing gym.

A: Make sure the gym has liability insurance. The eight points of Climb On Safely apply. Make sure equipment, degree of challenge, and instructions are age-appropriate for Cub Scouts. Cub Scouts are not to belay anyone.

Q: A Venturing crew wants to learn lead climbing. What do you say?

A: Guidelines found in *Topping Out* (including requiring top-roping for all climbers) apply whenever groups take part in council or district climbing/rappelling activities. Units that elect to participate in lead climbing, snow and ice climbing, etc., must comply with Climb On Safely and should receive training from a nationally recognized organization that trains climbing instructors.

Q: You discover that a Boy Scout troop has decided to go climbing on its next outing. How do you handle this?

A: Point out that at least one or more leaders should be trained in Climb On Safely. Ask about the qualifications of the climbing instructors(s). How are the instructors trained? Are they accustomed to coaching youths of the same age group? How long have they been instructing? What are their limitations in instructing others? (Beware of instructors who say they have "no limitations.")

Subject: Environmental Conditions

Course: Climbing

Time Frame
60 minutes

Instructional Objectives
At the end of this session, participants will be able to

- Explain the relationship of Leave No Trace to climbing and rappelling.
- Explain how weather conditions may affect climbing and rappelling programs.
- Describe other environmental conditions that may affect climbing and rappelling programs.

Training Aids and Equipment Required
Flip chart and markers

Materials for Distribution

- *Principles of Leave No Trace,* No. 21-105

Methods and Overview

- Minilecture and group discussion: Applying the Principles of Leave No Trace
- Minilecture and group discussion: Climb Smart Program
- Minilecture and group discussion: Weather Conditions
- Minilecture and group discussion: Monitor Environmental Conditions

Lesson Plan: Environmental Conditions

Before the session begins, write the seven principles of Leave No Trace on a flip chart or blackboard. Use that as a visual aid while explaining to participants that the BSA is committed to Leave No Trace, a nationally recognized outdoor skills and ethics awareness program.

Applying the Principles of Leave No Trace

Leave No Trace has been adopted by many organizations and land management agencies as an efficient tool for increasing the environmental awareness of people enjoying the outdoors, and for providing a common language for discussing environmental issues. The principles of Leave No Trace are to be followed at all times while setting up and conducting BSA climbing and rappelling programs.

Emphasize that Leave No Trace principles apply when selecting the sites to be used for climbing and rappelling programs as well as during the actual conducting of programs. Site selection should ensure that minimal alterations will be required to prepare a site for use. Any alterations (the construction of shelters to be used by participants, for example) should be done in such a way that they do not unduly damage the natural setting. Provisions must be made for disposal of any wastewater and human waste in order to prevent contamination of natural water sources.

Lead a group discussion about applying the principles of Leave No Trace to the selection and management of climbing sites, and to the actions of staff members and participants in BSA climbing and rappelling programs. Ask the group to explore ways that Leave No Trace can be incorporated into the fabric of a program so that participants not only care for the site they are using, but also develop a greater commitment to doing their part for the good of the environment as a whole.

For more information, refer participants to the BSA's publication *Principles of Leave No Trace*. (Leave No Trace is also discussed in the current editions of the following BSA publications: *Boy Scout Handbook, Scoutmaster Handbook,* and *Passport to High Adventure*.)

The general principles of Leave No Trace address a broad range of backcountry activities and may require some adaptation as in the following presentation, when being applied specifically to climbing and rappelling programs.

The Seven Principles of Leave No Trace

1. **Plan Ahead and Prepare.**
   - In advance, obtain information concerning geography and weather, and plan accordingly.
   - Keep group size within allowed limits.
   - Allow enough time to reach your destination.
   - Go to areas appropriate for your activities and skill level.
2. **Travel and Camp on Durable Surfaces.**
   - In high-use areas, stay on the trails and use existing campsites whenever possible.
   - In areas less traveled, spread out to avoid creating new trails, and disperse camping activities.
   - Avoid cutting across switchbacks.
   - Select hard ground, snow, or durable vegetation for cross-country travel.
3. **Dispose of Waste Properly (Pack It In, Pack It Out).**
   - Pack out all trash. (Careful planning helps minimize packing out food scraps and garbage.)
   - Use biodegradable soap at least 200 feet or more away from any water source.
   - Strain food particles before properly disposing of dishwater (at least 200 feet from all water sources).
   - Dig catholes 6 to 8 inches deep in humus and 200 feet from water, trails, and campsites.
   - Before leaving the campsite, bury catholes and latrines and restore ground cover.
4. **Leave What You Find.**
   - Choose sites that are free of fragile plants.
   - Do not pick plants or disturb natural settings, animals, and archaeological artifacts. Enjoy them where they are. (It may be illegal to remove or disturb wildlife and artifacts.)
   - Minimize site alterations. Do not dig trenches or build temporary shelters other than tents and dining flies. Do not hammer nails into trees, hack at trees with woods tools, or damage bark and roots by tying horses to trees for long periods.
   - Replace rocks, twigs, and other natural objects that you cleared from the campsite. Leave the area clean.
   - Remember that good campsites are found, not made.
5. **Minimize Campfire Impacts.**
   - Build fires only when appropriate. Otherwise, cook on lightweight camping stoves—especially where wood is scarce.
   - Use existing campfire rings rather than making new ones.
   - Burn small wood gathered from the ground, and burn all wood to ash whenever possible.
   - Make sure your fire is dead out and the fire ring is left clean.
   - Replace any sod or ground cover removed from fire sites.
6. **Respect Wildlife.**
   - Avoid quick movements and loud noises, which disturb wildlife.
   - Observe wildlife from afar, and give animals a wide berth—especially during breeding, nesting, and birthing seasons.

- Store food securely, and use bear bags and boxes to keep from attracting unwanted wildlife.
- Never feed wildlife. Help keep wildlife wild. You are too close if an animal alters its normal activities.

7. **Be Considerate of Other Visitors.**
   - Camp away from other groups to give them a sense of solitude.
   - Camp quietly, and leave radios, tape players, and pets at home.
   - Respect the privacy of other campers.
   - Wear clothing with colors that blend with the environment.

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. Explain to participants that 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.

Weather Conditions

Remind participants that the BSA climbing director and/or instructors on-site are responsible for monitoring weather conditions. No climbing or rappelling will be conducted when there is a possibility of lightning in the area, when the climbing surface is slippery, or when visibility is restricted in any way that would inhibit the ability of instructors to monitor the progress of every climber and rappeller.

Advise the group that cold and heat can also present dangers to climbing and rappelling participants. Discuss the importance of using the buddy system as a tool to monitor concerns such as dehydration, hypothermia, and other weather-related discomforts that can affect the safety and abilities of participants. For instance, weather cold enough to make it difficult for participants to grip rock securely may compromise their confidence, their enjoyment of the experience, and their safety.

Have the group come up with a list of alternative activities—slide shows, equipment displays, sheltered climbing walls, initiative games, etc.—that can involve participants when weather conditions bar them from the climbing and rappelling site.

Monitor Environmental Conditions

Ask participants what other environmental conditions should be monitored by directors and instructors. Be sure that responses cover the following situations:

- Closely check climbing and rappelling routes and belay positions before activities begin, and remove loose rocks or other debris.
- Keep the sites clear of vehicular traffic, poisonous plants, and power lines, and close the site if participant safety is jeopardized by insects, snakes, or other threats.
- Closely monitor the actions of spectators to prevent them from imposing upon the orderly and safe conduct of climbing and rappelling activities.

Subject: Site Management
Course: Climbing

Time Frame
60 minutes

Instructional Objectives
At the end of this session, participants will be able to

- Enumerate factors for selecting a new site.
- Open and close an existing site.
- Facilitate the flow of people to and from climbing and rappelling sites and on the site itself.
- Determine routes and activities appropriate for the number of staff members and participants, taking into consideration their ages and skill levels.
- Draw up a plan to ensure that basic essentials are in place at a climbing and rappelling site (first-aid kit, communications system, access to emergency medical response, evacuation plan, water, latrines).

Training Aids and Equipment Required

- Flip chart and markers

Materials for Distribution

- Climbing/Rappelling National Standards, No. 20-102 (current year)
- *Topping Out: A BSA Climbing/Rappelling Manual,* No. 32007

Methods and Overview

- Minilecture and group discussion: Site Selection Factors
- Minilecture and group discussion: Opening and Closing a Site
- Minilecture: Determining Routes and Activities
- Individual activity: Developing a Plan for Ensuring Essentials

Lesson Plan: Site Management

Site Selection Factors

Discuss with participants the following factors that should be taken into consideration when selecting a site:

- **Local expertise.** Utilize the help of people who know the area well, including persons outside of the BSA.
- **Climbing/rappelling surface.** Beware of fractured, brittle, loose, slippery, or crumbling rock surfaces. Hard stone such as granite is best.
- **Accessibility to emergency aid.** Be sure there is a dependable means of communication for obtaining emergency help.
- **Directional orientation.** Faces oriented to the north or east may be shaded from afternoon sunlight that could make activities uncomfortable in cooler months but more comfortable in summer months.
- **Lengths of climbing routes.** Routes normally are 30 to 50 feet.
- **Lengths of rappel routes.** Pitches should be at least 30 feet high on a constant slope.
- **Face angle.** Slope steepness should range from 40 to 80 degrees, with an ideal of 60 to 70 degrees.
- **Holds, cracks, ledges, protrusions.** Look for variety and durability.
- **Anchors.** Natural, failproof anchors must exist, or the possibility of installing failproof artificial anchors by qualified personnel.
- **Space above and below routes.** Belayers, climbers, rappellers, and instructors need room to move about. Safety lines may be required if participants must stand or travel near the edge of a cliff.

- **Secure equipment storage areas.** Careful storage and handling of climbing and rappelling equipment can substantially increase its useful life and help prevent loss or misuse.
- **Convenient access to drinking water and latrines.**

Opening and Closing a Site

Ask for suggestions of points that must be considered when opening and closing a site, including the following:

- Check the overall status of the site and the trails leading to and from the site.
- Check environmental conditions, including obtaining a weather forecast.
- Set anchors and prepare routes.
- At the conclusion of activities, disable routes and/or the site so that unauthorized persons may not use the area.

Facilitating Movement at a Climbing/Rappelling Site

- Using the flip chart, design a traffic pattern for a site.
- Establish a safe path to and from the site.
- Establish a safe path between the top of a climbing route and the beginning of a rappel route.
- If necessary, install a safety line.

Determining Routes and Activities

Discuss the factors to be used when selecting routes. Include the following:

- **Route orientation.** Orient the route to keep climbers, rappellers, and belayers from staring directly toward the sun.
- **Numbers of participants.** Large numbers of participants may be better managed if climbing routes are shorter and thus quicker.
- **Difficulty of holds, cracks, ledges, and protrusions.** The level of difficulty should be appropriate for the skill of participants.
- **Steepness of slopes.** The ideal steepness for climbing is a face of 60 to 70 degrees.
- **Rappel pitch length.** The ideal pitch length is at least 30 feet.
- **Anchors.** These can be natural or artificial, but they must always be failproof.
- **Sufficient work space above and below the routes.** The director, instructors, and participants require ample working room to help ensure their comfort and safety.

Developing a Plan for Ensuring Essentials

Using the Climbing/Rappelling National Standards, have participants draw up a list of the basic essentials needed at their home sites. Include:

- Emergency evacuation plan
- Emergency communications equipment
- First-aid kit
- Drinking water
- Shelter from a downpour

Subject: Staffing and Staff Training Plan

Course: Climbing

Time Frame
60 minutes

Instructional Objectives
At the end of this session, participants will be able to determine personnel requirements in order to safely operate a district or council climbing and rappelling program.

Training Aids and Equipment Required
- Flip chart and markers

Materials for Distribution
- Climbing/Rappelling National Standards, No. 20-102 (current year)
- *Topping Out: A BSA Climbing/Rappelling Manual,* No. 32007

Methods and Overview
- Minilecture: Identifying the Staff Required
- Minilecture: Evaluating Potential Staff Members
- Individual activity: Preparing a Staff Training Plan
- Minilecture and group discussion: Conveying the Basic Concepts
- Minilecture: Teaching the Core Skills

Lesson Plan: Staffing and Staff Training Plan

Reference chapter 13, "Staffing and Instructor Training," from *Topping Out* whenever appropriate.

Identifying the Staff Required

Discuss considerations directors can use to determine how many staff members are required for their home programs. Include the following:
- Climbing/Rappelling National Standards
- The design and topography of the climbing/rappelling site
- The type of belay system to be used
- The number of participants expected and the age, skill, and maturity level of those participants

Evaluating Potential Staff Members

Outline an appropriate manner for interviewing and screening instructor candidates for the staff of a local climbing and rappelling program to determine their level of competence and familiarity with a particular camp's program. Points to consider include:
- Age (minimums are 21 for BSA climbing directors or lead instructors who will be in charge of a climbing or rappelling session, 18 for instructors, and 16 for instructors-in-training)
- BSA registration
- Current BSA Personal Health and Medical Record Form—Class 1 (for short-term programs), Class 2 or 3 (for long-term programs)
- The ability to teach and to lead
- The ability to work with youth as well as adults
- Previous experience in climbing and rappelling activities with site conditions similar to the site where the staff member will supervise.

Preparing a Staff Training Plan

Refer participants to the staff training portion of *Topping Out*. The detailed syllabus can serve as a guide as they develop training plans for their home programs. Based on staff candidate evaluations, the syllabus may be adjusted to address needs of particular candidates—additional opportunities to practice rappelling, for example, or to oversee a group involved in climbing. Because three days is the minimum length of training, councils may choose to hold an instructor course requiring prerequisite knowledge in climbing/rappelling skills. Other training courses for novice instructors may be held over two weekends totaling five or six days.

Important factors in structuring a training plan are these:

- Training must be at least three days.
- Each instructor candidate should participate as a belayer and climber and/or rappeller on each route.
- Each candidate should facilitate the activities of other climbers or rappellers on each route.
- Each candidate should actively participate in incident resolution of possible course emergencies.
- Take into consideration the entry knowledge level of the group of instructors.
- Site-specific certificates of training, such as "Camp Rockford Tower Lead Instructor," may be appropriate to specify that the instructor has been trained to lead a climbing program only at the specified facility—in this case, Camp Rockford tower.

Conveying the Basic Concepts

Ask the participants how they have run or expect to run instructor training in their local council or camp. Discuss with participants some effective ways they can convey these basic concepts during staff training:

- The buddy system
- Leave No Trace
- Challenge by choice
- Climb On Safely
- Safety guidelines for participants (wearing helmets, speaking up when unsure what to do, checking and rechecking knots, when to spot, when to belay)
- Responsibilities of BSA climbing instructors
- Dealing with leaders of Scout groups
- The importance of staff teamwork
- Debriefing staff members and program participants

Teaching the Core Skills

The staff training syllabus in *Topping Out* outlines the climbing and rappelling skills required of instructors and instructors-in-training. Lead a discussion of effective ways to ensure through training that staff members learn those skills.

Subject: Emergency Plans and Incident Resolution

Course: Climbing

Time Frame
4 hours

Instructional Objectives
At the end of this session, participants will be able to

- Develop an emergency response plan for a climbing and rappelling program.
- Demonstrate techniques for resolving and preventing potential rescue situations.
- Know how to prepare a climbing/rappelling first-aid kit.

Training Aids and Equipment Required

- *Topping Out: A BSA Climbing/Rappelling Manual,* No. 32007
- Sample emergency first-aid kit
- Emergency rescue gear (litter, second belay rope and anchor, etc.)
- Flip chart and markers

Materials for Distribution
None

Methods and Overview

- Group discussion: Preparing for Emergencies
- Minilecture and group activity: Incident Resolution
- Minilecture: Suggested Climbing/Rappelling Group First-Aid Kit

Lesson Plan: Emergency Plans and Incident Resolution

Reference chapter 12, "Emergency Response, Rescues, and First Aid," from *Topping Out* whenever appropriate.

Introduction

Thorough staff training and attention to detail help minimize the risk of serious injury during climbing and rappelling activities. Nonetheless, the nature of the program can result in emergencies requiring incident resolution. Important thought: Almost all incidents are predetermined by the design and implementation of the program.

Preparing for Emergencies

Review situations at a climbing/rappelling site that may lead to emergencies. Lead the group in discussion preparations that can help minimize the potential for accidents and maximize the efficiency of response to emergencies that do occur. Be sure to cover the following subjects:

- A written emergency response plan
- Proper, documented staff training plan
- Accessibility of emergency vehicles to the climbing and rappelling site and to the site of emergency medical services. An emergency vehicle will not be able to drive to most natural sites, but there must be a plan to move a person to an emergency vehicle if necessary.
- On-site communication and transportation
- First-aid kit and emergency gear on hand and first-aid-qualified person present
- Designated rope and hardware ready, if needed, for a rescue
- Staff members trained in appropriate rescue methods
- Site and equipment inspections before the beginning of any program

Incident Resolution

Keep in mind that these incident resolution techniques apply to both COPE and climbing, and the terminology covers both activities. Staff members should avoid using the word "rescue." And using the words "climber," "participant," or "rappeller" is better than using the word "victim."

This training should help directors and instructors to avoid trying unnecessary incidence response techniques. Instead, they should understand that almost all incidents could have been prevented.

Incidents can be placed into three categories.

- **Medical—**A medical issue has prevented the participant from continuing.
- **Emotional—**The participant has been placed in a situation that he or she was not ready to attempt.
- **Technical—**Some portion of the anchor or belay system has caused the issue.

The most common incidents are when something becomes stuck in the rappel device and when a participant is put in a fearful situation. To help prevent placing participants in a potentially risky situation, follow these points.

- Use a dynamic belay so that a person can be lowered to the ground if needed. Static belays should be discouraged. The rescue is risky for a person who slips or falls during a high-course event, but this situation can be avoided.
- Use a releasable rappel on static rappel lines.
- Properly prepare the participants, both emotionally and physically, for the activity. Ensure proper warm-up, as well as good equipment and clothing preparation.

Order of Rescue

The successful BSA aquatics program uses an order of rescue—reach, throw, row, go—that has been adapted for use in a climbing/rappelling or COPE scenario. The idea is to remedy the situation in the safest, quickest, and easiest manner. The last resort is to put someone at risk by physically moving to contact another person and bring him or her to safety. The goal in any situation is to allow the participant to finish the activity with as little intervention as possible.

Stay CALM and assess the situation, then implement an appropriate course of action that follows 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 With the Participant. Communication is used in every scenario. In an emotional situation, a climber/rappeller may be frozen on a rock face, tower, or high 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 participant through the situation by using simple, clear, concise, and reassuring words. Ask the participant how they feel and ascertain what they would like to do. Remember, our activities are "challenge by choice"—the participant plays the key role in deciding what to do next. No participant should ever be pressured into continuing.

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

Lower the Participant. Use a dynamic belay to simply lower the participant to the ground. A releasable rappel or pulley system can be used to lower the person to the ground while keeping the person on the initial belay the entire time.

Move to the Participant. As a last resort, a staff person might have to climb or rappel next to the victim. The rescuer may help the victim verbally while allowing the person to remedy the problem. Next, the rescuer may have to physically offer assistance to unjam a rappel device. **Pick-off and cutaway rescues add additional risk because they remove the participant from the primary belay system. These procedures should be reserved for professional rescue personnel and should not be taught as a part of the BSA program.**

Evaluate the Situation. After the situation has been resolved, debrief the situation with your staff. Were procedures overlooked? Could procedures be changed to help prevent this from happening again?

Rehearse. Once you have evaluated the outcome of the incident and determined the resolution, you may need to change your procedures. Any changes should be documented and rehearsed by your entire staff. Almost all incidents can be avoided with better course design and/or implementation of procedures. Planning, smart setups, and proper preparation could have prevented a large percentage of the incidents that have happened in BSA programs.

Releaseable Rappel

Single-Rope Rappel

The preferred technique is to have a static rappel line as the activity rope and an independent dynamic belay rope tied into the climber's harness, all tied to the anchor system. The static rappel rope being used must be at least twice the height of the rappel. For a 40-foot rappel, at least 40 feet of extra rope must remain at the anchor. Leaving the appropriate length of rope, tie a Münter hitch/mule knot using an HMS (*halb mastwurf sicherung,* translated from German to English as "half clove hitch") carabiner.

If something becomes jammed in the rappel device, you can easily and quickly clear it by doing the following.

- Have the belayer lock off or tie off (with a mule knot) the dynamic belay rope.
- Slowly untie the mule knot on the static rappel rope.
- With the Münter, it is very easy to lower the static rappel rope to create some slack in it. The rappeller is now being supported by the belay rope.
- Clear the rappel device.
- At the anchor, take the slack out of the static rappel rope and tie it off as it was initially.
- Untie the belay rope and lower the rappeller a few feet so that his or her weight is back on the static rappel rope. The rappeller may now continue the activity.

Double Rope Rappel

The preferred technique is to have two independently anchored static rappel ropes and an additional dynamic belay line tied to the climber's harness. Each static rappel rope being used must be at least twice the height of the rappel. Leaving the appropriate amount of rope, tie each static rappel rope with a Münter hitch/mule knot using an HMS (*halb mastwurf sicherung,* translated from German to English as "half clove hitch") carabiner.

If something becomes jammed in the rappel device, you can easily and quickly clear it by doing the following.

- Have the belayer lock off or tie off (with a mule knot) the dynamic belay rope.
- Slowly untie the mule knot on one of the static rappel ropes at the anchor.
- With the Münter, it is very easy to lower the static rappel rope to create some slack in it.
- Remove the obstruction from this rope where it goes through the rappel device.
- At the anchor, take the slack out of the static rappel rope and tie it off as it was initially. Slowly untie the mule knot on the other static rappel rope.
- Lower the static rappel rope to create some slack in it.
- Clear the obstruction from this rope where it goes through the rappel device.
- At the anchor, take the slack out of the static rappel rope and tie it off as it was initially.
- Untie the belay rope and lower the rappeller a few feet so that his or her weight is back on the static rappel rope. The rappeller may now continue the activity.

For either of these setups, since you have double the amount of rope that was needed for the rappel, it is possible to lower the rappeller all the way to the ground if needed.

Remind participants that a climbing and rappelling area must have on hand enough rope and hardware for the appropriate rescue techniques. This may be a 4-to-1 pulley system or 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 rescue rope and hardware might be located at the top of the face near the anchors. In many cases, it will be possible to secure the rescue 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.

Serious accidents at well-supervised climbing and rappelling sites are rare. If an emergency does occur and an injured person is lying on the ground, the situation should be handled as a standard first-aid emergency with one difference—the location of the program site may delay the arrival of medical experts, thus requiring first-aiders to stabilize and maintain an injured person for a longer period of time.

Group Program Solving

Separate the group into groups of three or four participants each. Give each group two minutes to discuss a situation requiring staff intervention, such as:

- On Parents' Night at summer camp, a 12-year-old Scout is 20 feet up your 35-foot tower when his belay rope becomes unattached from his harness. His mother is watching.

- While rappelling at a natural site on a double-rope rappel with a fireman's belay, a Scoutmaster is halfway down the face when his jacket gets jammed in his rappel device. He can't go up and he can't go down.

- An 11-year-old Scout is climbing at a natural site. Halfway up, he stops, stares at the wall, won't move, and won't acknowledge anyone.

- A Scout with cerebral palsy wants to climb. He has very little control of his right hand and always wears a foot brace on his left foot. He is significantly overweight.

- You arrive at camp for the first time to find that you have a self-proclaimed world-class climber on your staff. He knows everything and says that the only reason you are the director is because he isn't old enough.

Incident Resolution Skills

Rotate participants through four stations that teach techniques used to easily remedy a situation.

Station 1—Releasable rappel setup

Station 2—Pulley systems

Station 3—Friction knots and devices

Station 4—Belay escape

Set up emergency scenarios and engage participants in the mock rescues of persons acting as "injured" climbers, rappellers, belayers, and/or bystanders. At a minimum, include the following:

- Using the belay rope to lower an injured person to the ground
- Installing a backup belay system so that an instructor can rappel down to assist an injured person
- Coping with a rappeller whose hair or clothing has become entangled in a rappel device
- Securing belay ropes so that belayers can release themselves from systems that are still active

At the completion of each mock rescue exercise, conduct a debriefing with the entire group. Encourage them to evaluate their reactions to the situation and their performances as individuals and as a team. Provide positive feedback to help participants improve their ability to respond to emergencies, and to enhance their confidence in their own skills.

Suggested Climbing/ Rappelling Group First-Aid Kit

Discuss the contents that a typical group first-aid kit for climbing/rappelling should contain, as listed in *Topping Out.*

20-180A
2008 Boy Scouts of America