AMC Top Rope Site Management
AMC NH Chapter

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All materials are created for the sole purpose of illustrating the concepts taught as part of a leadership course, and not to be replicated or used as a replacement for the American Mountain Guide Certification Manual (2012), or other climbing or outdoor leadership training materials. This manual is a reference tool for the Appalachian Mountain Club Top Rope Site Management I & II courses.
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INTRODUCTION

The Mountaineering Committee (MC) leader training had its origins in a class contracted to Jed Eliades in the mid-90’s, which offered the first formal training for NH Appalachian Mountain Club (AMC) leaders. Our AMGA certified TR Site Management training began near the year 1993 after Jackie Veal secured club funding for several MC members to take the AGMA TRSM course.

Our present course evolved with various MC instructors contributing improvements, which tailored it to MC trip requirements. Instrumental in this early effort were Jackie Veal, Thor Smith, Larry Veal, Scott Taylor, Bill Burke, Susan Gimilaro, Tom Meredith, and others. Jim Kent set the initial objective of getting suggestions for improvement. Additional recognition goes to NH Chapter Co-Chairmen, Joe Dorsheimer and Tom Sintros.

The prime objective of the course is to train MC leaders. However, we welcome instructors from local schools, other chapters, and individuals who desire to improve their personal climbing safety skills.

Presently, our TRSM program is divided into two weekend segments; TRSM I and II. TRSM I introduces the new trip leader to basic TR set-ups, teaching fundamentals, and NH Chapter protocols. TRSM II covers sport leading, reviews rescue, and addresses advanced TR situations. Both sections include cliff bottom and cliff top exercises and a practical exam. The instructors reserve the option to alter the course to accommodate group dynamics, experience, weather, and other unexpected circumstances.

This manual is a work in process. Your comments, criticisms, and suggestions are welcome. Please send them directly via email at j.edward.eliades@dartmouth.edu.
SECTION ONE - NH CHAPTER PROCEDURES AND PROTOCOLS

CLIMBING TRIP CHECKLIST: CONCEPT TO COMPLETION

1. Trip conceived: who (leader), what (activity/level), where (cliff), when (date), why (objectives)?
2. Propose trip at the bi-annual planning meeting; receive the trips calendar.
3. Enter the trip for publication on line at www.outdoors.org.
4. Trips Administrator edits, reviews, approves, & submits to Joy Street.
5. Trip is published. See Activities on web site.
6. Screen inquiries. Ask about recent experience, medical concerns, such as allergies, equipment needed, email address, and phone number are other inquiries.
7. Make a trip roster. Participant e-mail list also desirable.
9. Communicate meeting time, place, personal equipment needed, and cancellation plans.
10. Meet at trailhead.
11. Issue equipment using a sign out log is suggested.
12. Trailhead discussion: plans, expectations, introductions, safety review, target time of completion. See TRIP TALK chart in Appendix C.
13. All sign liability waiver. Remind participants: ‘climbing is dangerous’.

14. Hike, climb, and return.
15. Submit report to MC Co-chairs. Use trip roster form or email a briefing. Report trip income and expenses, head count of attendees, recommendations (repeat next year?), equipment problems, etc.
16. Send the Liability Release forms to MC Co-chair, or to AMC, Joy Street.
17. Mail checks to MC Treasurer.
18. If applicable, send report to USFS. See form in Appendix D.
19. Submit an accident/incident report if applicable.

CLIFF SELECTION – ETHICS AND LOGISTICS

Choosing a cliff suitable for a particular class requires careful consideration. Most critical is to choose a cliff you know well. The crag needs to be a good venue for your trip objectives. Are you providing a beginner experience, an advanced lesson, or just a climbing get-together? Are the
climbing grades in the desired range for your group? These are factors in your cliff selection that will make a difference in your participants’ experience. You want to match the challenge with the skill and goals of your climbing clients. Other concerns are parking, length of hike in, and popularity of the cliff (Arrange early if you’ve chosen Rumney on a weekend!). Also be aware of sun-hit times, wet rock, and sensitive environments. Do consider erosion, rare plants, and bystanders too. Your cliff should be selected to allow your group to practice ‘leave-no-trace’ principles, including minimizing noise and visual pollution in order to allow your climbing partners to enjoy the experience and learn the environmental ethics of climbing.

Safety considerations of course are paramount. Issues in this category include loose rock, stinging wasps, poison plants, and wild animals…the most dangerous being untrustworthy locals (think Rockrimmon). Next, do you need cliff-top access? Or are you going to lead the routes? Are these routes sport or traditional climbing routes? Are the anchors simple bolts, or trees? Does this cliff require traditional gear for leading or top roping? What are your evacuation options, and have you considered the contacts, routes, cell service, and medical facility location?

You need to choose a cliff that provides adequate space for the ropes that you’d like to set up. Can you leave room for other parties, and still set your ropes adjacent to one another? Being a good steward is important to making the cliffs friendly to the experienced climber, as well as newcomers.

It is unlikely that you will ever find the perfect cliff. However, a prudent selection can make your trip easier to manage; and, good selection can make it more fun for your participants.

**EQUIPMENT USE AND CARE**

The AMC NH Chapter maintains a broad range of mountaineering gear…. ice, rock, glacier travel, and avalanche. This section discusses the use and care of rock climbing equipment. This includes beginner gear (harness, helmet, shoes, and ATC), top rope set-up (static lines, locking carabiners, and runners), emergency equipment, lead racks, and climbing ropes. Generally two, 10-person trips can be accommodated simultaneously.

The equipment is stored in a secured area and can be requisitioned for published climbing trips. A sign-out log is provided in the locker. Coordinate with previous and subsequent users by phone or email to expedite exchanges.

Once in a leader’s possession, the gear should be counted and inspected; Then, stored and transported in a secure and friendly environment. All gear is identified with ‘teal’ tape and grouped in various bags, which are tagged to label the contents.

Distributing gear at the beginning of a trip to share the load of packing it in, is facilitated by spreading it out on a medium sized, ground tarp and a check out list of who will be responsible for carrying, utilizing and returning the equipment during the trip.
Climbing shoes- wipe mud off soles and tie together.

Helmet and harness- fit at the trailhead. Bring an extra of each.

Carabiners and ATCs- keep off the ground (clip to gear loop).

Runners and quick draws- keep on rack and count periodically.

Emergency kits- assure the contents are complete, including a Gri-gri.

Ropes (You should have one climbing and at least one static set-up)-

Before and after use, **flake the rope** to inspect for defects and eliminate kinks. If you can pinch a zero radius, the rope is a reject.

Avoid twists through an ATC or bolted anchors. Lower climbers with the rope entering and exiting hardware in a *single* plane. In other words, it’s okay to lower through single eyes, quick clips, chains, or triple links, but **never** double links.

Sport ropes are **flaked** onto the Metolius rope bags. Tie the top end to the colored loop. Other ropes are to be butterfly coiled.

Climbers traditionally know dirt, mud, abrasion, and UV rays are bad for ropes but also note bleach, urine, battery acid, kinks, insect repellant, and wet storage may be even worse! Share this with your climbing clients and partners to increase their awareness.

Wet ropes should not be returned to the storage locker, but air dried **indoors**. Un-cinch the wrapped end and lay the ‘butterflied’ coils loosely over a door top or festoon the rope on wooden pegs.

Red tag all defective or suspicious gear.

Report missing or lost gear to the Equipment Coordinator.

**TOP ROPE SITE MANAGEMENT POLICIES**

A TR site is defined as climbing where the *participants* are always protected by a rope from above. This outlines leader responsibilities for AMC-NH climbing events.

**Leader Responsibilities**

Plan and submit activities for publication.

Manage the site.

Inform the participants...day's plan, safety requirements, etc. (see the AMC Trip Talk Card).

Maintain an overview, and assume responsibility for group safety.

Delegate to the assistant leader(s).
Provide equipment liaison.
Set up top ropes.
Teach belaying.
Assure everyone is safe and having fun.

**Trip Planning**

Choose a cliff that you know well. Know your limits and your partners'.
Trip write-up: specify when, where, contact info, and type of climbing.
A clear agenda is critical...is this a *clinic* or a *climbing experience*?

**Participant Communication (usually e-mail)**

If relevant, what is their experience? Do they have restrictive medical conditions?
Do they have equipment? Where can they rent shoes? What will the AMC provide?
Each participant should bring pack, water, lunch, raincoat, personal first aid kit, and bug dope.
Discuss ride sharing desires.
Coordinate where and when to meet.
Obtain participant e-mail address and telephone number.
Establish a communications plan in case of inclement weather.

**Meeting at the beginning of the trip (see TRIP CARD, Appendix C)**

Introductions
Clarify safety rules - helmet, lowering, cliff edge, etc.
Ask about allergies.
Give an overview of day’s activities including a completion time estimate.
Stay together
Discuss ‘leave no trace’ (LNT) requirements.
Equipment care.
Sign liability waivers

**TR Set-ups** – two basic options.
Either set up early and have one leader stay with the set-ups (ethical issue) or have one leader set up while the other talks with the participants.

Be prepared with alternatives (your cliff is wet or taken by another group).

Consolidate your set-ups along the cliff. This facilitates site management.

Each set-ups must meet the SERENE principle.

Tighten all the climbing ropes by pulling from the bottom.

End of day: pull ropes from the bottom before disassembling anchors.

**Ethics for climbing groups.**

Leave room for others. Don't set up every climb on a cliff.

Avoid scattering gear at the base of the cliff.

Pull all unused ropes.

Thread the rope through quick draws to minimize wear on sport anchors.

Stay on trails to minimize erosion.

No participants on top unless they are involved in a clinic. (cliff erosion and safety issues).

Adhere to LNT principles

**Safety/liability**

Managing a TR site is a big responsibility. You alone are in charge!

Keep an overview of who is doing what – “the big picture”.

Limit your program to what was published in the bulletin.

Maximum 10 climbers (including leaders)

All leaders and participants must sign AMC liability waivers.

Helmets are required at all NH rock climbing activities.

Have an emergency plan. Where is the nearest hospital? Cell service?
Guidelines for climbers and belayers

Check buckles and knots before each climb.

Tie into harness correctly (per the manufacturers’ instructions).

Belay, anchor, or rappel using only the harness belay loop to clip your locking carabiner.

Belay with the brake hand below the braking device.

Use commands 'on belay' and 'take' as a minimum.

You must tie in if near a cliff edge or if you are throwing a rope.

Beginner belayers must be anchored and backed-up.

Climb only below the anchors...not above or to the side.

Belayer should lower the climber with two brake hands on rope.

Do not belay or rappel with quick “twist-lock” carabiners.
SECTION TWO - CLIMBING INSTRUCTION FUNDAMENTALS

INTRODUCTION TO ROCK CLIMBING LESSON - SAFETY CHECKLIST

SAFETY ESSENTIALS

Don't fall off the cliff !!!!

Learn the basic principles, follow your instincts. If you don't understand it, don't do it.

Wear your helmet.

Double back all buckles. Back up knots that tend to loosen.

TR ANCHOR SYSTEM

Every component must be redundant.

Carabiner gates opposite, opposed, and locked.

Anchors, climber, and belayer in line.

Tie in if near the cliff edge or if throwing the rope.... yell, "Rope!"

Avoid or pad sharp edges.

Choose solid anchors, such as a live, 4" tree or large boulder, or bolt.

BELAYING

Tighten top anchors by pulling rope at bottom.

Close the system. One option is to tie the belayer to climbing rope.

Anchor the belayer.

Belay with a taunt anchor from a stable position.

Squeeze check the carabiner, and double check all buckles and knots.

Brake hand never leaves the rope.
Communicate with standard signals.

Keep climber *tightly* at bottom.

Lean back away from the belay device when lowering climber.

Lower with two hands on the braking rope.

**CLIMBING**

Remove rings, and other jewelry before climbing.

Climb under the anchors, not off to one side.

**CARE OF EQUIPMENT**

Don't step on the rope. Transport in a protective bag.

Avoid throwing carabiners or slings thrown on the ground.

**RAPPELLING**

Tuck in shirt-tails, long hair, etc.

Rappel with a belay from above.

Tie knots in the end of the rope.

**TEACHING AN INTRO CLASS...A PHILOSOPHY AND GUIDELINE**

Most everyone that climbs has introduced a beginner to climbing. Your teaching ability is inherent in the sport. Further, new climbers already *know* how to climb; what four-year-old doesn’t?

Adults just need guidance with the safety methods and equipment. This section makes some practical suggestions and covers AMC NH-specific guidelines.

First, be aware that most new climbers are apprehensive. Your job includes helping them build trust in the system, their belayer, and themselves. Fears can be rooted in peer reaction, height, learning disabilities, or limited athleticism. Your actions, confidence, and compassion can do much to alleviate the new climbers’ concerns. A helpful suggestion is to inform the student they have a choice of lowering from their personal high point.
It’s best to introduce climbing with a philosophy of ‘do more; talk less.’ First, you and your partner do a short demo climb, and during this demo you need to include all safety protocols. Then, urge the participant to climb only 10 feet and lower off before committing to a full pitch. This simple progression allows them to precede at a comfortable pace...climb now; the details will follow as they gain experience. For example, rather than try to memorize a dozen commands, I suggest the student use only two initially: **On-belay**, and **Take**. They will pick up the others as their climbing day progresses. A handout can communicate the formal list.

The KISS principal *really* applies to initial climbing instruction. I suggest mentioning only basics such as footwork, look **down** for footholds, emphasize the ‘frog’ position (hang on straight arms), and climb ‘like on a ladder’.

An AMC rule is that we all wear helmets. Specific NH Chapter guidelines require all beginner belayers are anchored and initially backed up. Use a belay method the keeps the brake hand **below** the braking device and lower with **two hands** on the brake-side when using an ATC. Cliff-top rules include: use of a personal anchor before throwing a rope, all rap and lowering activities require a belay, and cliff-edge avoidance if not tied in.

In summary, assure everyone is safe and has fun. The trip leader needs to orchestrate and maintain a constant overview.

**SPORT CLIMBING- SIMPLE STEPS TOWARD SAFE LEADING**

1. Experience
   Get lots of TR experience so you are comfortable on rock and **know** when you are going to fall.

   Start with sport climbing... save ‘trad' for later.

   Follow and clean lots of routes.

2. Your First Lead
   You'll **know** when the time is right.

   Stay two or more grades below your climbing capability.

   With your mentor, choose a **safe** route.
3. Preparation

Choose a good day. Do you feel up to it?

TR the climb first, or mock lead it.

Best if your belayer is an experienced leader.

Organize the draws before you start. How many bolts? Be sure you have enough draws.

4. The Climb

Stick clip the first bolt, or have your belayer spot you.

Put a locking ‘carabiner, or two draws, on the first bolt (optional).

**Avoid back clips**...essential!

Avoid Z-clips.

Usually best to clip with the bolt height between your nose and navel.

**Avoid the rope behind your heel** (it could flip you backward in a fall).

Clip from a rest position.

Move from rest to rest; breathe/relax.

**Don't fall unless it is safe!**

Clip two or three draws at the top, carabiners opposed, and say TAKE.

Congratulations on your first lead!

5. Other

Efficient clipping (see illustration in photos)

Anchoring the belayer (pros and cons). Discuss in detail.

Cleaning a sport route.
SECTION THREE - TRSM ONE INSTRUCTION

COURSE SYLLABUS

INTRODUCTION

TOP ROPE ANCHORS AND BASE MANAGEMENT

Anchor fundamentals…SERENE, personal anchor, rope handling.
Efficient TR set-up with single static rope using natural anchors.
Set-up practice by participants.
Cliff bottom management discussion (overview, critical safety issues).
Bottom anchor….’student’ and ‘instructor’. Teaching climbing/belaying.
Belay transfer…..weighted/un-weighted. Ascend to victim and counter rap.
Practice at base of cliff.

CLIFF TOP

Shorten TR anchor using BFK.
Set up releasable rappel (Munter/mule). Belay off anchor.
Practice rappel on level; then off cliff.
Rap rescue…..lower victim.
Wrap up…rope coiling. Debrief.

TRIP PLANNING

Q&A review.
Trip planning checklist & discussion.
Use and care of AMC climbing equipment.
Handling an emergency.

EXAM

Exam. Evaluations.
Open the butterfly coils and lay across forearms.

Re-stack the rope, inspecting for damage.

A simple anchor.

Anchored climber, using the rope.
Top rope V-set-up with one static rope.

Anchor rope attached with figure-eight-on-a-bight.

Adjacent figure-eight knots with locking 'biner gates opposite and reversed.

Anchor rope attached with a clove hitch allowing equalization adjustment.
Conventional ground anchor using the climbing rope.

Ground anchor alternative. Belay off the anchor. Ideal for student climbing groups.

Preparation for the weighted belay transfer. A friction knot on the climbing rope is attached to the rescuer’s belay loop.

Catastrophe knot is tied below the rescuer’s brake hand (not shown).
TRSM I RESCUE ASCENT & COUNTER RAPPEL

The basic set-up with a 3:1 haul. The Gri-gri serves as a ratchet-pulley.

Pick-off and counter rappel. Rescuer attaches a cow’s tail to the victim’s belay loop, removes the friction knot, and simu-rappels.

The ascent. Back-up knots tied as the rescuer climbs.
TRSM I  CLIFF TOP EXERCISES

Beginner rappel on the single rope (purple)…….releasable

Release the Munter Mule to transfer the load to the (blue) belay rope. Attach an auto block back-up (not shown) to your belay loop to lower the rap victim.
SECTION FOUR - TRSM TWO INSTRUCTION

COURSE SYLLABUS

INTRODUCTION

SPORT LEADING
   Introduction.
   Sport leading....clipping safety/efficiency.
   Belay issues.
   Top anchors and cleaning.
   Cliff selection (discussion).

RESCUE. TRAD GEAR PLACEMENT
   Belay escape.
   Ascend and counter balance rap with victim (TRSM I review).
   Trad gear placement and anchor building.

CLIFF-TOP
   TR Set-up variations. Multiple set-ups with single static line. BFK.
   Autoblock self-belay for rappelling.
   Rap rescue..... haul.

WRAP-UP
   Review. Q&A.
   Exam. Evaluation.
TRSM II SPORT LEADING

Quickdraw clipped correctly. Rope goes from the rock OUT thru ‘biner (no dog-bone twist)

Danger. Back clip is incorrect!

Efficient clipping.

Danger. Z-clip!
Extended rap set-up with auto bloc back-up for instructor use only.

Gri-gri redirected for lowering a climber. (Requires auto bloc back-up to harness.)

3:1 Haul for raising climber.
TRSM II  ADVANCED ANCHORS

Gear anchor in a crack.

W-anchor. Can be expanded along the cliff top for multiple set ups. Wraps, slings, trad gear, or knots provide the attachment options.
TRSM II  TOP ANCHOR CLEANING

1. Climber anchors with cows’s tail.

2. Pull up slack; tie 8-on-a-bite; clip it to belay loop.

3. Untie; thread eyes; re-tie in.

4. Confirm belay and lower.
RECOMMENDED READINGS


Appendix A - LEADER REQUIREMENTS & MOUNTAINEERING COMMITTEE POLICIES

AMC Requirements for Leaders (ref. OLDC)
Trip Leader/Instructor Requirements
Active Leader Criteria
Leadership Process
Steps to Leadership
Reimbursement Policy
Appendix B - CLIMBING EQUIPMENT AND CRAGS

Equipment List

Top Rope Climbing Areas
Appendix C - HANDOUTS

Climbing Communications

Trip Introduction Talk
Appendix D - STANDARD FORMS

AMC Risk Release
Incident Report
WMNF Summary of Use
TRSM Participant Evaluation
Mentor Evaluation
Workshop Evaluation