

VENCLIMB!

An introduction to the sport of Rock Climbing for youth
... and their Advisors

Prepared for Scouts Canada
Voyageur Region
VenClimb

Year 2000 Edition
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1st Manotick Venturer Company

An Introduction to Rock Climbing

Introduction

This handout outlines a program for youth and adults as an introduction to the sport of rock climbing. It has been developed as a guide and is not a substitute for many fine references and climbing handbooks. A reading and reference list is provided. Instead, it is a getting started guide that highlights how to achieve safety, and be constantly aware of dangers, to learn correct rock etiquette, and how to use basic equipment.

VenClimb, or Venturer Climb is a program developed by experienced rock climbing leaders involved in Scouts Canada Voyageur region. The goal is not to simply expose youth to climbing, but to deliver a skills development program that builds new skills necessary for a safe and enjoyable climbing experience. The objective is to foster an interest in rock climbing, which can be a life long and extremely rewarding pursuit.

VenClimb is an annual climbing camping expedition designed to introduce Venturers to rock climbing, and to develop skills obtained on previous climbing adventures. The program is progressive in that each year new challenges and experiences are added for returning experienced youth.

VenClimb teaches participants how to safely and properly:

- Set-up top rope anchors, belay and rappel stations
- Belay correctly
- Climb safely
- How to react in case of emergency
- Develop more advanced climbing skills

Successfully working through this material, supervised by an experienced and qualified rock climber, youth leaders and Venturer Advisors will obtain knowledge to take their companies on a climb. For youth this material provide a reference and aide-memoir. It will introduce rock climbing, and the equipment required to safely participate in the sport. Also to provides participants with a basic knowledge of how to set up anchors and basic climbing skills and techniques and rope handling and the basic necessary alpine knots. Venclimb is a program that builds skills over several years. A variety of climbs are set with increasing difficulty and training value. A more advanced part two climb is set up for youth who have been out a couple of times, and have mastered the basics and are ready for the next level of climbing challenge.

A word about safety

Risk avoidance and safety management is a vital concern. Rock climbing is an inherently

dangerous sport, and those involved must be appropriately prepared. Safety scenario planning must be part of any out door adventure, but given the nature of rock climbing, the need to prepare and anticipate accidents and injury increases. If you are not prepared or qualified you must not undertake these activities.

Are you: In the right place
 At the right time
 With the right people
 With the right equipment.

If you answer no to any of these questions, the decision must be to stop the activity. Further, it is not the place for foolhardy behaviour. Any departure from safe practices by participants will yield an immediate eviction from the climb.

Method

This is a basic course, which will give introductory knowledge of rock climbing. It focuses on a technique called TOP ROPING. Top roping provides the optimum safe climbing environment at the novice level. Other more advanced techniques such as LEAD CLIMBING are not covered in this program.

Top Roping secures the rope to anchors at the top of the climb and runs down the rock face, with one end secured to the climber and the other secured to a belayer. Top Roping is the climbing technique most often used to introduce people to the sport.

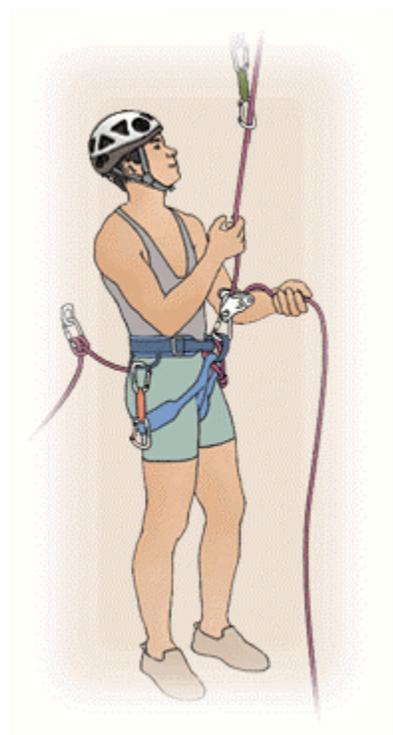


Figure 1. Shows a correctly prepared belayer.
Illustration used with permission, Petzl Corporation

The Lesson Plan

1. Explain training plan, training schedule and course objectives.
2. Discuss rock climbing, what it is, why it is popular, where it can be done, and safety.
3. Learn and practice key knots, harnesses and rope handling.
4. Discuss and set up practice anchors.
5. Discuss required equipment, places to buy it and an estimated cost.
6. Review reference material, and suggested reading list.
7. Climbers first aid kit.
8. Emergency telephone number

Discussion of Rock Climbing

What is rock climbing?

It is climbing a vertical face of a rock or climbing wall. It is not mountaineering or a quest to summit great mountain peaks. Enjoyable rock climbing does not necessarily need great altitude. For example, one popular form of rock climbing is bouldering. Where climbers try and climb a vertical face that may only be a few meters high, but one where there is a challenge or puzzle to be solved. Climbing is a game where gravity is always a player. The primary goal is not to fall. Having the appropriate gear is the key to your safety in that it has the ability to keep gravity at bay.



What is Top Roping?

Climbing a vertical rock with a rope running from the climber to the top of the climb and back to the belayer is called Top Roping. It is also often called a sling shot set up. Top rope climbs are set up by hiking around to the top (avoiding cliffs, rock faces and the dangerous precipice) and securing redundant / multiple anchors. The mid point of the rope is clipped in to the anchor system using two locking carabiners. Both ends are dropped to the ground below. One end is attached to the climber, the other to a secured belayer. Multiple side-by-side top rope routes can be set up, to provide a variety of experiences, under the watchful eyes of the Climb Masters, (leaders & advisors) provides maximum experience and maximum safety.



Two Carabiners are used to increase reliability. There are many different methods used in anchoring. The key is having a built in *back up* should one anchor or item of equipment fail. Attention is paid to the combined strength of the equipment used. The old saying, “the chain is only as strong as its weakest link” is never truer than in rock climbing. In fact, it is a vital learning. To protect against failure of any component in the Top Rope system, redundancy, back-ups and multiple anchors are always used. Squeeze to check a Carabiner: The Squeeze Test.

Petzl AM'd Carabiner

Photograph used with permission, Petzl Corporation

Basic Climbing Safety

Everyone wears a helmet! The most common form of injury is being hit on the head with a rock, or hitting rock with your head. Helmets are considered mandatory. For first experience climbers a bicycle helmet with the holes taped closed can be used. Hard hats are good for the belayers but must have a chin strap if used while climbing.



Petzl Helmet

Horseplay leads to serious injury. Although not required, altitude is usually involved, and horseplay in these environments is dangerous. You will be asked to leave if you indulge in these behaviours.

Never stand or step on ropes as it weakens the fibres and degrades the quality of the rope. Similarly, care should be taken not to drop equipment.

If something / anything (equipment or rocks) falls YELL “**ROCK!**” If you are tossing a rope over the face edge it is custom to YELL “Rope!” but ROCK is universally understood. It is human nature to look up when one hears a shout from above. Before you do, THINK, something is on its way down and standing underneath looking up is a sure way to maximize any injury. Do not look up. Step safely away, or under a protective ledge or out cropping.

Belayers must be attentive and focus on the up rope climber. Proper use of belaying devices is taught in this program. Belayers must be constantly alert to the needs of *their* climbers.

If an accident occurs, alert the nearest person in charge and clear the area if not involved. All climbing should stop until the situation is assessed

Belay Techniques



A key safety behaviour is the double check. In this environment climbers work in pairs. You do not climb until you have checked both your own and your belayers security. His harness, the knots and the anchors. Your Belayer does not allow you to climb until he has checked both himself and you. Checking includes making sure harnesses are correctly done up with straps doubled back through the buckles, or in accordance with manufacturers directions. The climber is tied to the rope using a woven figure eight knot. The belayer is secured to the rope with a belay device, *and* to some immovable object. A 180lb. Person, falling 16 feet puts an excess of 2000 lbs. Force on the climber and belay point. (metric equivalents available upon request)

Knots

A few essential knots are required in order to go climbing. They are:

Figure of eight

Figure 8 knot is used as a stopper knot. In sailing, it's used to prevent the end of a rope from running through the rigging. In climbing it most often used on a bight to tie a loop around an immovable object, or to secure two ropes together. It is used to tie in to your harness, and is used as a 'keeper' knot on clove hitches.



Figure of 8 Knot



Woven Figure 8



Figure 8 loop, with barrel knot 'keeper'

Alpine butterfly knot

Another 'mandatory' knot is the Alpine Butterfly. It is used to put a secure, non-slip loop in a standing rope. It can be tied in the middle of a rope, with out having access to the ends. It holds tight, can

take heavy loads and is surprisingly easy to untie. It has a vast number of uses, but is most commonly used to create an anchor loop to clip in to.



Step 1

Step 2

Step 3



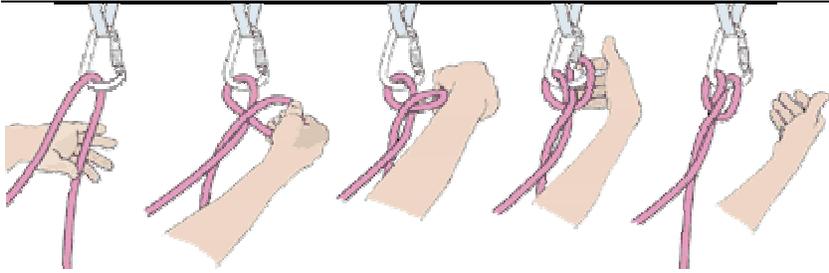
Step 4: done!

Clove hitch

Hitches are knots that fall apart if they are not tied around something. Typically this can be at the top or bottom of a climb. The knot shown here also includes the figure 8 as a keeper. Added security to ensure the hitch does not work loose. If you are tying this, remember to tie a figure of 8 first.



The Clove Hitch, with figure 8 keeper



It is also possible to tie a clove hitch to a carabiner as shown above.

The Water Knot



Figure 1

Figure 2

The Water knot is used in 1inch tubular webbing and is a static (won't stretch) material used to anchor tie downs. Webbing is remarkably versatile, very strong and cheap. Only 1 inch / 20mm webbing is used in climbing rigging. Webbing can be tied in to loops (slings) and around rocks, loop bolts and trees and anchors. Care must be taken, as in all rigging set ups, not to run webbing over sharp edges that may compromise the strength or security of the system. To tie the water knot one starts with a simple single knot shown in Figure 1. The knot is tied by weaving the other end back through the knot. The completed knot is shown in Figure 2. It is also good form to tie 'keepers' with the loose tail ends.

Advanced Knots include Double and triple fisherman's knot and Prusik Knot.

These are not presented at this level, but interested participants can consult the reading list for a wide variety of authoritative knot & sling knots.

Harnesses

You must have a harness to secure your body to the rope. It must be strong and with able to withstand a fall. Two types are common. An improvised tape harness is okay for first experience. But manufactured harnesses offer greater safety and comfort.

Tape

Tape or tubular webbing can be used to create a homemade harness. Only 1inch or 20mm tape should be used. There are pros and cons to this approach. To find out how to tie a tape seat

harness consult either the ORCA handbook or Freedom of the Hills as noted in the reference list.

The “pros”: Inexpensive
Fits any body size

The “cons”: Takes time to make
Uncomfortable after a short period of time
Many knots to be checked
Knots can loosen must be checked often

Manufactured

Must meet C.E. (U.I.A.A.) Standards
Must fit properly (one size rarely fits all)
Must use proper tie in points



Figure 1



Figure 2

Figure 1 shows a dangerous harness, the strap must be doubled back through the buckle as shown in figure 2. Belayers and climbers must carefully inspect each others straps & buckles prior to climbing.

Carabiners

Use only C.E.
All anchor points
Quick auto lock may
“D” shaped are best
Pears are good for
(Ovals are not



U.I.A.A. screw gate carabiners.
are doubled
be used for belaying
for set up.
belaying
recommended except for carrying gear)

Belaying Devices

“Gri-gri” are used in climbing gyms, they are very safe and when used correctly are virtually auto locking. They are expensive, but give a fair bit of “piece of mind” when used properly. Not recommend for use with static non-stretch rope.

{photo, showing correct rope position in a Gri-gri goes here}

Stich plates and other similar types (ATC, Tubers, Vari controllers) are relatively inexpensive. They can be used for hard or soft stopping, but if used improperly the rope will run freely. (No back up)

Figure eights are for repelling, not belaying.

Munter Hitch very useful, can be used for hard or soft stopping. Requires only a large locking carabineer. Wear very hard on rope.

Ropes

Rope must be certified climbing rope. U.I.A.A. tape identifying approval is found on the ends of the rope.

Static rope (low stretch) usually comes in 9/16". It is good for rappelling and can be used for top roping. Static rope is more resistant to abrasion than dynamic rope. Drawbacks: it is stiffer and there is very little shock absorption. It can be useful in setting up top rope anchors.

Dynamic rope (high stretch) available in sizes 8.5mm to 11mm. The 8.5mm and 9mm are half ropes and must be used doubled, 9.8mm, 10.5mm and 11mm can be used on there own. Ropes come in a variety of colours and makes. The most common lengths available are 45m-60m. A 50m will accommodate most climbs in this area. When a climber falls they stretch to absorb the shock of the fall.

Tape and Webbing

There are two materials that webbing can be made from: nylon and spectra. It comes in two types, flat and tubular. Webbing is usually sold by the metre then tied, but it can also be bought pre-sewn into loops, (slings). Two 25m pieces of webbing should cover the extremes of your needs for setting up anchors in this area. An additional 20m will be required if you are tying a harness.

Gloves

Leather gloves with padded palms are very useful for rappelling but are not mandatory.

Recommended Equipment and approximate costs

6	Locking "D" carabiners (Lucky Cuatro @ \$8.00)	\$ 48.00
1	Pear locking carabiner (Simond Jumbo HMS @ \$12.50)	\$ 12.50
1	Figure 8 (DMM @ \$12.50)	\$ 12.50
1	Belay device (ATC, Black Diamond @\$ 22.00)	\$ 22.00
2	25 m of 25-mm tubular webbing (@ \$0.75/m)	\$ 37.50
1	50-m Climbing rope, 10.5 mm or 11 mm e.g. 10.5 mm Mammut Flash 50-m non-dry @ \$139.00 (must be mail-ordered)	\$ 139.00
2	Tape harnesses made from 7 m of 25-mm tubular webbing (@ \$0.75/m)	\$ 15.75

		\$287.25

In addition, each climber must have a helmet, @ \$60.00. For first time & occasional climbers a bicycle helmet with the holes taped closed will be permitted

Top Roping set up

Setting up a top rope, with sling shot belay.

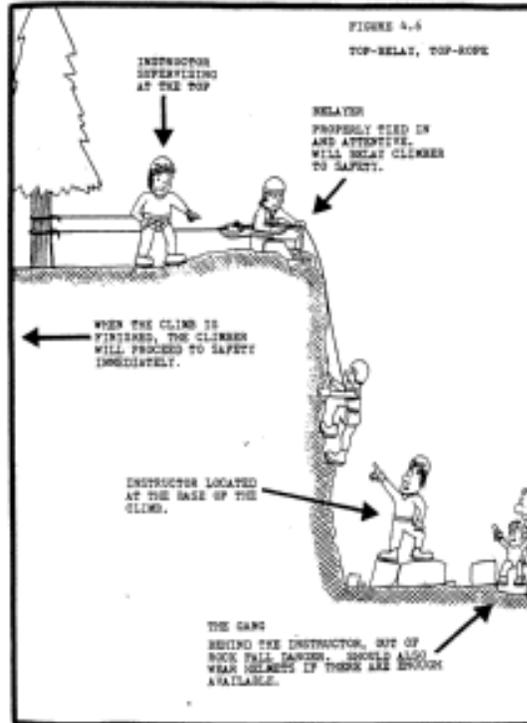
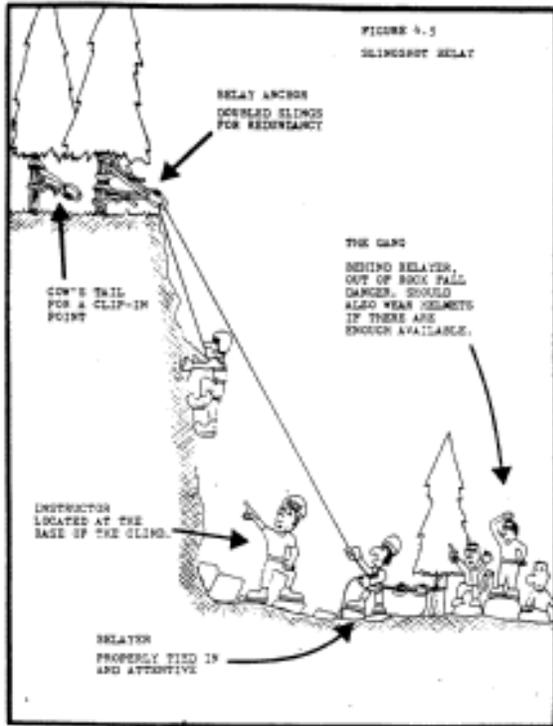
When looking for anchorage points at the top of the climbing route, you will need to find at least 2 strong natural features (large trees or solid boulders) or two solid bolts. Bolts are permanently installed anchors. They must be inspected before use. If in doubt, don't use them.

Tie the webbing using a water knot.

There should be less than a 90 degree angle were the two meet. The knots should not be at the point where the two pieces of webbing meet. Join with 2 locking carabineers.

Be careful to avoid rope rubbing on the cliff face. Place the carabineers over the edge, not on the edge.

Remember redundancy is good, should one anchor or piece of equipment fail it is good to know that there will be still enough to get you down safely. Carabineers should always be doubled when setting up anchors.



Diagrams courtesy of Ontario Rock Climbing Association

Belaying and Commands

The belayer is there to insure the safety of the climber. As in setting up a top rope doubling up good. You may wish to have additional people helping with the belay. There are two methods of acceptable methods of belaying: “hand over hand” and “hand slide”. The belayer never takes his eyes off the climber, or his hands off the rope.

A sequence of questions and replies are used to ensure clear communication between climber and belayer. After double checking security of knots, harness anchors and belay device. The climber approaches the rock and asks...

“Belay on?”

The belayer replies

“On Belay!”

The climber asks,

“Climbing?”

The belayer replies,

“Climb On! “

Should the climber require some slack loose rope the command is, **“Slack !”**

“Up Rope!” is the command to pull up the slack.

Up Rope, or Take, is the command used to tell the Belayer to hold fast, to hold the climber in place.

“Watch Me”, commands the belayer to pay close attention and expect a possible fall.

“Falling!!!” is somewhat self-explanatory, but does alert the belayer to brace and secure.

“Belay Off” is the climber signal to the belayer that he has anchored himself and the belayers responsibility to belay should end.

“Off Belay!” The Belayers reply that the belay has ended... the climber is unsecured.

“Rock!” ... rocks, equipment or debris is falling down. (Don't look up)

Climbing First Aid Kit

In addition to the standard first aid kits used for out door activities, participants have to anticipate more than the usual number cuts & abrasions. Additional large size adhesive bandages should be added. An example of an injury might be a pendulum swing with knees scraping across the rock face. (ouch, but not life threatening) Stinging insects are a typical problem because these creatures like to nest in rock cracks and damp holes. Insect dope for our flying biting friends is also required. EPI pens must be brought by participants, After-Bite (ammonia) baking soda, and Calamine lotion are all useful inclusions. Twisted fingers, ankles and wrenched knees are more serious injuries. Broken fingers can happen when they get jammed in to rappel or belay devices. Wire splints, and large steri-pads for finger injuries, and Tensor bandages for twists and sprains should be added. The most serious potential injuries are back and neck injuries. Cervical collars and back-boards should be available.

As always the focus is on injury avoidance. Understanding the potential dangers, and the type of resulting injuries is an important part of **“Be Prepared”**. A suitable first aid kit must be prepared and its location known to all.

Reference & Reading List

Freedom of the Hills. The classic text for climbing.

High Angle Rescue Techniques. An advanced manual on knots, rope-work and evacuation

Ropes Knots and Slings for climbers

ORCA climbing reference manual (Ontario Rock Climbing Association)

<http://www.angelfire.com/on2/accottawagats/index.html>

For additions or revisions contact Scouter Rod Wilson through the Voyageur Region Venturer Advisors Forum.

Acknowledgments

VenClimb was conceived by climber extraordinaire, UIAA Instructor, Alpine Club of Canada Instructor, ORCA Instructor: Al Dimond of Ottawa. Al's commitment to introducing people of all types and abilities to climbing and his service to youth and the climbing public is gratefully acknowledged.

VenClimb also acknowledges the ongoing support of the Voyageur Region Venturer advisors Forum.

The advisory board on climbing safety and instruction includes Al Dimond, Sean Freill, Christiaan Burchell and Rod Wilson.

Emergency Procedures and Phone Numbers

All participants should plan evacuation and emergency procedures. Record all appropriate emergency telephone numbers. Note that cell phones may not work where you are climbing, so locate the nearest telephone prior to your climb.

Should there be a serious accident. All climbing stops! The nature of the activity changes from recreation to evacuation, and all participants are expected to assist in getting the injured party in to care as quickly as possible. Emergency activities happen under the direct supervision of the Climb Masters and qualified first aid experts.

Participants must also make available personal contact information, health insurance, and health concerns (allergies). An approved information / registration / waver form must be completed and signed by the participants parents or guardians. For reference, complete the following.

My Name is _____

My home phone number, emergency contact is _____ at _____

telephone number _____

My health insurance number is: _____

The Voyageur Regions' Annual VenClimb takes place in the Gateneau Park near Luskville.

911 Note that if your cell phone has an Ottawa (613) number calling 911 may connect you to Ottawa's 911 service.

1 819 459-9911 will connect you with Pontiac Region Emergency Services

1 888 459-9911 Toll free number to P.R.E.S.