

# Top Rope Rock Climbing Leader Instructor Agenda and Lesson Plans



**Top Rope Rock Climbing Leader**  
**Instructor Schedule and Lesson Plans**

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The Top Rope Rock Climbing Leader Training Program has been assembled based upon the following schedule over four days. Scheduling for the delivery of the program is designed to provide flexibility. The program can be delivered in four consecutive days or broken into two weekends of two days each weekend.

## **First Day – 7.5 hours + Travel and Lunch**

### **Session 1: Course Start**

#### ***(Lesson Plan 1 and Designing a Top Rope Outing Chapter)***

- Paperwork, Emergency and Local contact numbers
- Welcome
- Goals, Outcomes, Limitations, Instructing Philosophy
- Competencies and Assessment
- Course agenda  
Course waivers and ACC waiver delivery procedures

*Method: Combination of visual media and student interaction*

*Location: Classroom*

*Time: 45 mins*

*Objectives: Model course start procedure*

*Provide an overview of the course and competencies*

*Review equipment expectations and standards*

*First opportunity for instructors and students to get to know each other*

*Discussion: This is an important session; it will set the tone for the course. The students should clearly understand the course format and be aware of the course expectations*

### **Session 2: Front Country Risk Management**

#### ***(Lesson Plan 2 and Designing a Top Rope Outing Chapter)***

- Identifying front country hazards
- Implementing the risk management model to assist with decision making

*Method: Combination of visual media and student interaction*

*Location: Classroom*

*Time: 30 mins*

*Objectives: Brainstorm common risks associated with top rope climbing outings*

*Explore risk modification options*

*Discussion: This session begins to develop the students' situational awareness and understanding of risk identification and management in a leadership role*

### **Session 3: Day Planning**

#### ***(Lesson Plan 3 and Preparing for a Top Rope Outing Chapter)***

- Model the planning and decision making process
- Explore weather forecasting and basic weather tools
- Discuss participant communication requirements

*Method: Combination of visual media and group interaction*

*Location: Classroom*

*Time: 45 mins*

*Objectives: Develop an understanding of the relationship between the weather and the day plan*

*Provide an overview and interpretation of basic weather forecasting tools*

*Familiarize students with the plan for the day and the planning process*

*Discuss required equipment for the day and appropriate layering*

*Discussion: This session outlines the process that a top rope leader would use to determine the day plan and communicate with participants. Students will be assigned the responsibility of delivering the forecasting and planning component of the day on all subsequent days of the course.*

#### **Session 4: Travel to the climbing venue**

- Carpooling
- Driving directions

*Method: Discussion*

*Location: Classroom*

*Time: 10 mins*

*Objectives: Clarify the climbing venue location and meeting time*

*Provide instructor contact information in the event someone is lost*

*Discussion: This concludes the classroom portion of the first day and leads into the field component*

#### **Session 5: Front Country Briefings Modeling**

##### **(Lesson Plan 4 and Delivery of a Top Rope Outing Chapter)**

- Initial venue briefing
- Equipment distribution
- Basic group management
- Group travel expectations
- Group safety concerns and hazard
- Minimization of impact on the natural environment

*Method: Discussion*

*Location: Field session*

*Time: 10 mins*

*Objectives: Model the delivery of a participant briefing*

*Clarification of the information that needs to be disseminated to participants prior to the commencement of an outing*

*Discuss group management practices, pacing and leadership*

*Discussion: This session explores and clarifies what information needs to be conveyed to participants during the initial meeting at the venue.*

#### **Session 6: Climbing Site Overview Modeling**

##### **(Lesson Plan 5 and Delivery of a Top Rope Outing Chapter)**

- Hazards and venue specific risk management
- Equipment organization
- Human waste
- Basic ecology interpretation

*Method: Discussion*

*Location: Field session*

*Time: 10 mins*

*Objectives: Model the delivery of a climbing site specific briefing*

*Discuss the organization of equipment and the management of human waste and litter*

*Engage the students to think about the risks specific to the site and how they would be managed if leading a group*

*Discussion: This session explores and clarifies what information needs to be conveyed to participants once they arrive at the climbing site*

#### **Session 7: Equipment Strengths and Limitations**

##### **(Lesson Plan 6 and Technical Systems Chapter)**

- Introduce commonly used technical top rope climbing equipment
- Discuss force and its relationship with the climbing system
- Explore material strengths and limitations
- Discuss which components of a Top Rope climbing system need to meet what strength requirements

*Method: Combination of visual demonstration and group interaction*

*Location: Field session*

*Time: 30 mins*

*Objectives: Familiarize students with commonly used top rope climbing equipment and its respective strength  
Discuss factors that reduce material strength (knots, cross-loading, etc.) and equipment limitations (lifespan, manufacturer's specifications)*

*Discuss force and how it is measured and applied to the climbing system*

*Discussion: This session introduces students to material strengths and limitations and provides them with a base level understanding of climbing physics*

## **Session 8: Anchor Configurations**

### **(Lesson Plan 7 and Technical Systems Chapter)**

- Introduce anchor construction and evaluation concepts
- IDEALS acronym
- The "I" Integrity in the acronym IDEALS (Quality of rock, Quality of placement, Size of piece, Minimized multiplication of force, Direction of pull)
- Discuss bolt (sleeve and glue-ins) placement and assessment
- Construction methods for two bolt anchors (Parallel and Self-Adjusting and Anchor extensions)
- Evaluating tree anchors
- Connecting to trees to create an anchor (Basket hitched sling with locking carabiner)
- Applying rigging ropes to create tree anchors

*Method: Combination of visual demonstration and group interaction*

*Location: Field session*

*Time: 90 mins*

*Objectives: Familiarize students with commonly used anchor configurations and basic fixed equipment assessment criteria  
Discuss factors that increase force on an anchor and how they can be minimized (Leverage and Vectors)  
Practice constructing a variety of anchors using a variety of materials*

*Discussion: This session introduces students to commonly used anchor configurations and provides an overview of their respective applications*

## **Session 9: Anchor Access and Tethering Techniques**

### **(Lesson Plan 8 and Technical Systems Chapter)**

- Access from below
- Access from above
- Tethering to an anchor when working near an edge

*Method: Combination of visual demonstration and discussion*

*Location: Field session*

*Time: 30 mins*

*Objectives: Discuss accessing anchors from below via a lead or scramble approach  
Discuss accessing anchors from above via a belayed or scramble approach  
Demonstrate the use of a tether as a means of fall restraint when working near an edge and discuss the differences between a static tether and a dynamic tether*

*Discussion: This session provides students with usable tools for efficiently and effectively tethering to an anchor when setting up anchors from above or connecting to an anchor to compete a thread to rappel*

## **Session 10: Rope Management Techniques**

### **(Lesson Plan 9)**

- Pre-rigging ropes for a day of top rope climbing
- Coiling and rope bags
- Throwing ropes

*Method: Combination of visual demonstration and discussion*

*Location: Field session*

*Time: 30 mins*

*Objectives: Demonstrate several methods of organizing ropes in advance so they can be effortlessly setup at the start of an outing (Split coil and Stacked in a rope bag)  
Discuss rope throwing methods and their applications (Gravity feed and Split toss with the middle thrown first)*

*Practice throwing ropes using several different methods*

*Discussion: This session provides students with usable tools for efficiently and effectively getting ropes to the cliff bottom when setting up anchors from above*

### **Session 11: Delivering a Top Rope Lesson Modeling**

#### **(Lesson Plan 10 and Delivery of a Top Rope Outing Chapter)**

- Instructor modeling of the delivery of a top rope lesson using the rigged top ropes (Helmet, Harness, Figure-eight knot, Belaying, Self, partner and instructor checks, Climbing communication, Lowering)
- Risk management for first time climbers (Ground practice and Back-up belays)
- Basic instructing theory (Describe, Demonstrate, Do)

*Method: Combination of visual demonstration and discussion*

*Location: Field session*

*Time: 75 mins*

*Objectives: Demonstrate the structure and delivery of a basic top rope climbing lesson*

*Model and discuss the risks associated with new climbers and belayers and how to appropriately manage them*

*Discuss basic instructing theory specific to the delivery of physical skills possessing associated risk*

*Screen student belay skills and climbing communication and provide coaching if any inconsistencies are noted*

*Discussion: This session provides students with a framework for the delivery and management of a top rope climbing lesson, it is also an opportunity to see students' belay skills and ensure they are consistent with current practice*

### **Session 12: Top Rope Climbing Hazard Management**

#### **(Lesson Plan 11 and Delivery of a Top Rope Outing Chapter)**

- Loose rock
- Traversing climbs
- Sharp rock and edges
- Features (Ledges, Corners and Overhangs)
- Lowering hazards
- Communication issues
- Using ground anchors
- Using directional quickdraws

*Method: Group discussion*

*Location: Field session*

*Time: 15 mins*

*Objectives: Discuss the commonly encountered risks associated with top rope climbing activities and how they can be addressed*

*Explore the use of directional quickdraws and where and when they would be beneficial*

*Discussion: This session strives to further expand students' situational awareness and understanding of risk identification and management in a leadership role*

### **Session 13: Site Teardown and Departure Modeling**

#### **(Lesson Plan 12)**

- Model pulling ropes and retrieving anchors
- Site sweeps for equipment and litter
- Group travel expectations review

*Method: Combination of visual demonstration and discussion*

*Location: Field session*

*Time: 10 mins*

*Objectives: Demonstrate several methods for retrieving ropes and anchors (Pull ropes from below, Pull ropes from above, Retrieve anchors from above, Retrieve anchors from below)*

*Review group travel expectations for the hike out (Single file, On trail, Alert for wildlife)*

*Discussion: This session models the tear-down of a top rope climbing site at the end of a session or outing and should focus primarily on efficiency*

### **Session 14: Review and Planning for the Following Day**

- Revision of the key content that was covered throughout the day (Group management, Anchor configurations, Teaching top rope climbing skills, risk identification and mitigation, etc.)
- Review of the agenda for the following day (Meeting time and location, Day plan, Equipment Requirements, etc.)

*Method: Group discussion*

*Location: Field session*

*Time: 15 mins*

*Objectives: Discussion specific to the day as a whole and an opportunity for students to seek further clarification  
Explanation of the agenda for the subsequent day and review of the day plan*

*Discussion: This session wraps up the first day and is an opportunity to review key content or concepts, in addition to providing student's with an opportunity to ask question and seek clarification. It is also an opportunity to review the plan for the following day and clarify and discrepancies*

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## **Second Day – 7.5 hours + Travel and Lunch**

### **Session 1: Student Led Day Planning**

- Student led weather forecasting and synopsis
- Student led planning and decision making
- Student led driving directions and travel organization

*Method: Student presentation*

*Location: Classroom or Field session*

*Time: 20 mins*

*Objectives: Student practice forecasting and applying decision making processes from a leadership perspective  
Instructor coaching and feedback based on student performance and determinations*

*Discussion: This session provides students with the opportunity to practice skills that were covered the previous day and to receive coaching as required. It is also an opportunity for instructors to assess student competency with the day planning skill set*

### **Session 2: Student Led Front Country Briefing**

- Student led initial venue briefing
- Student organized equipment distribution
- Student led group management
- Student led group travel expectations
- Student led group safety concerns and hazard
- Student led environmental ethics and minimization of impact on the natural environment

*Method: Student presentation*

*Location: Field session*

*Time: 10 mins*

*Objectives: Student delivery of a front country participant briefing  
Student led group management, pacing and leadership  
Instructor coaching and feedback based on student performance*

*Discussion: This session provides students with the opportunity to practice skills that were covered the previous day and to receive coaching as required. It is also an opportunity for instructors to assess student competency with the front country briefing skill set*

### **Session 3: Student Led Climbing Site Overview**

- Student led hazards and venue specific risk management
- Student led equipment organization
- Student led human waste discussion
- Student led basic ecology interpretation

*Method: Student presentation*

*Location: Field session*

*Time: 10 mins*

*Objectives: Student led delivery of a climbing site specific briefing and hazard discussion  
Instructor coaching and feedback based on student performance*

*Discussion: This session provides students with the opportunity to practice skills that were covered the previous day and to receive coaching as required. It is also an opportunity for instructors to assess student competency with the climbing site briefing/overview skill set*

### **Session 4: Students Construct Top Rope Anchors and Establish Top Ropes on Climbs suitable for Top Belaying and Teaching Movement**

- Student led anchor construction and rope throwing
- Student led application of directional quickdraws if required

*Method: Student practice*



*Location: Field session*

*Time: 20 mins*

*Objectives: Student led practice setting up top rope anchors on top rope climbs  
Instructor coaching and feedback based on student performance*

*Discussion: This session provides students with the opportunity to practice skills that were covered the previous day and to receive coaching as required. It is also an opportunity for instructors to assess student competency with the anchor construction and rope throwing skill sets*

### **Session 5: Teaching Basic Climbing Movement Modeling (Lesson Plan 13 and Rock Climbing Movement Chapter)**

- Instructor modeling of the delivery of basic movement techniques using the rigged top ropes (Edging, Smearing, Balance, Crack climbing techniques, etc.)
- Basic instructing theory review (Describe, Demonstrate, Do)
- Smooth and efficient movement modeling

*Method: Combination of visual demonstration and discussion*

*Location: Field session*

*Time: 75 mins*

*Objectives: Demonstrate the structure and delivery of basic movement skills  
Review basic instructing theory specific to the delivery of physical skills  
Model efficient climbing and discuss the qualities of effective climbing movement  
Screen students' personal movement skills and provide coaching if any inconsistencies are noted*

*Discussion: This session provides students with a framework for the instructional delivery of basic climbing movement techniques. It is also an opportunity to screen students' personal movement to ensure they're climbing at a level that is consistent with the expectations of a Top Rope Leader*

### **Session 9: Top Belaying**

#### **(Lesson Plan 14 and Technical Systems Chapter)**

- Anchor considerations
- Tethering to an anchor
- Direct anchor belays with an Italian hitch
- Importance of stacking and securing the rope

*Method: Combination of visual demonstration and discussion*

*Location: Field session*

*Time: 45 mins*

*Objectives: Discuss anchor considerations when top belaying (Positioning, Loose rock, Sharp edges, Communication, Rescue, etc.)  
Discuss tethering to an anchor (When it's required, Using the climbing rope, Using a lanyard)  
Discuss rope management when top belaying  
Practice direct anchor belays using an Italian hitch*

*Discussion: This session provides students with the foundational tools to deliver an effective top belay and the opportunity to practice the top belaying with an Italian hitch and receive coaching from instructors*

### **Session 10: Improvised Rescue from Above**

#### **(Lesson Plan 15 and Technical Systems Chapter)**

- Tying of an Italian hitch
- Rappelling on a single strand with a back-up
- Improvised chest harness construction
- Rope ascending
- Creating a simple raising system

*Method: Combination of visual demonstration and discussion*

*Location: Field session*

*Time: 4 hours*

*Objectives: Demonstration and practice the complete improvised rescue from above system (Tying off the Italian hitch, Rappelling on a fixed rope, Constructing an improvised chest harness, Ascending a fixed rope, Constructing a raising system, Completing a raise)*

*Discussion: This session provides students with the all the required tools to improvise a rescue when top belaying a student. These are challenging skills for even the most experienced leaders to complete efficiently and time should be spent ensuring they a modeled and discussed clearly before being practiced thoroughly*

**Session 12: Student Led Site Teardown and Departure**

- Student led ropes and anchor retrieval
- Student led site sweep for equipment and litter
- Student led group travel expectations review

*Method: Student presentation*

*Location: Field session*

*Time: 10 mins*

*Objectives: Student led practice tearing down a top rope climbing site and preparing the group for departure  
Instructor coaching and feedback based on student performance*

*Discussion: This session provides students with the opportunity to practice skills that were covered the previous day and to receive coaching as required. It is also an opportunity for instructors to assess student competency with the site teardown and departure briefing skill sets*

**Session 13: Review and Planning for the Following Day**

- Revision of the key content that was covered throughout the day (Top belaying, Improvised rescue)
- Review of the agenda for the following day (Meeting time and location, Day plan, Equipment Requirements, etc.)

*Method: Group discussion*

*Location: Field session*

*Time: 20 mins*

*Objectives: Discussion specific to the day as a whole and an opportunity for students to seek further clarification  
Explanation of the agenda for the subsequent day and review of the day plan*

*Discussion: This session wraps up the second day and is an opportunity to review key content or concepts, in addition to providing student's with an opportunity to ask question and seek clarification. It is also an opportunity to review the plan for the following day and clarify and discrepancies*

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## **Day Three – 7 hours + Travel and Lunch**

In groups of 2, students will be responsible for organizing and delivering a top rope climbing outing from planning to execution. Instructors will provide feedback and coaching throughout the day and take on the role of a participant along with 2 other students. The following day the roles will be reversed and the students who were participants the previous day will take on the role of the top rope leaders.

### **Session 1: Pre-trip planning**

- Students will plan and communicate with participants prior to meeting them for the outing

### **Session 2: Front Country Briefing**

- Students will meet with participants at the determined time and location
- Student will administer waivers in accordance with ACC policies
- Students will brief participants on the day plan and the anticipated weather based on their forecasting

### **Session 3: Climbing Site Overview**

- Students will deliver a climbing site overview including any notable risks and any environmental concerns
- Students will provide very basic interpretation specific to the area

### **Session 4: Top rope Anchor Setup**

- Students will construct top rope anchors and hang top ropes in terrain that is appropriate for the delivery of a top rope climbing lesson and the instruction of several basic climbing movement skills

### **Session 5: Top Rope Lesson**

- Students will deliver a basic top rope climbing lesson including instruction specific to the helmet, harness, knot, belaying, checks, communication and lowering
- Students will identify situational risks and manage them appropriately

### **Session 6: Basic Movement Instruction**

- Students will model and instruct several basic movement skills
- Student will demonstrate smooth efficient movement consistently

### **Session 7: Improvised rescue**

- Students will construct an appropriate top anchor for top belayed climbing
- Students will simultaneously complete an improvised rescue in a top belayed scenario
- Students will tie-off the Italian hitch, rappel down a fixed line to the victim, complete simulated first aid, construct and apply an improvised chest harness, ascend the fixed line, construct a raising system and complete a raise.

### **Session 8: Site Teardown**

- Students will organize the teardown of the top rope climbing site
- Students will deliver a departure briefing and organize a site sweep

### **Session 9: Instructor Led Review and Planning for the Following Day**

- Revision of the day as a whole and the key feedback and coaching that was provided
- Review of the agenda for the following day

*Method: Group discussion*

*Location: Field session*

*Time: 20 mins*

*Objectives: Discussion specific to the day as a whole and an opportunity for students to seek further clarification  
Explanation of the agenda for the subsequent day and review of the day plan*

*Discussion: This session wraps up the third and fourth days and is an opportunity to review key content or concepts, in addition to providing student's with an opportunity to ask question and seek clarification.*

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## **Day Four – 7.5 hours + Travel and Lunch**

In groups of 2, students will be responsible for organizing and delivering a top rope climbing outing from planning to execution. Instructors will provide feedback and coaching throughout the day and take on the role of a participant along with 2 other students. The following day the roles will be reversed and the students who were participants the previous day will take on the role of the top rope leaders.

### **Session 1: Pre-trip planning**

- Students will plan and communicate with participants prior to meeting them for the outing

### **Session 2: Front Country Briefing**

- Students will meet with participants at the determined time and location
- Student will administer waivers in accordance with ACC policies
- Students will brief participants on the day plan and the anticipated weather based on their forecasting

### **Session 3: Climbing Site Overview**

- Students will deliver a climbing site overview including any notable risks and any environmental concerns
- Students will provide very basic interpretation specific to the area

### **Session 4: Top rope Anchor Setup**

- Students will construct top rope anchors and hang top ropes in terrain that is appropriate for the delivery of a top rope climbing lesson and the instruction of several basic climbing movement skills

### **Session 5: Top Rope Lesson**

- Students will deliver a basic top rope climbing lesson including instruction specific to the helmet, harness, knot, belaying, checks, communication and lowering
- Students will identify situational risks and manage them appropriately

### **Session 6: Basic Movement Instruction**

- Students will model and instruct several basic movement skills
- Student will demonstrate smooth efficient movement consistently

### **Session 7: Improvised rescue**

- Students will construct an appropriate top anchor for top belayed climbing
- Students will simultaneously complete an improvised rescue in a top belayed scenario
- Students will tie-off the Italian hitch, rappel down a fixed line to the victim, complete simulated first aid, construct and apply an improvised chest harness, ascend the fixed line, construct a raising system and complete a raise.

### **Session 8: Site Teardown**

- Students will organize the teardown of the top rope climbing site
- Students will deliver a departure briefing and organize a site sweep

### **Session 9: Instructor Led Review of the Day**

- Revision of the day as a whole and the key feedback and coaching that was provided
- Review of the agenda for the following day

*Method: Group discussion*

*Location: Field session*

*Time: 20 mins*

*Objectives: Discussion specific to the day as a whole and an opportunity for students to seek further clarification  
Explanation of the agenda for the subsequent day and review of the day plan*

*Discussion: This session wraps up the third and fourth days and is an opportunity to review key content or concepts, in addition to providing student's with an opportunity to ask question and seek clarification.*

**Session 10: Final review and training session close**

- General revision of the core topics and concepts that were covered throughout the training
- Review nature of the training and scope of the Top Rope Leader
- Further training opportunities and support
- Course close

*Method: Visual media and group discussion*

*Location: Classroom or field session*

*Time: 30 mins*

*Objectives: Final course wrap up including limitations and further training objectives*

*Discussion: This session concludes the training course and is a final opportunity to review anything that was unclear or inconsistent. It is also an opportunity to outline the scope of the training and options available to leaders for further personal and professional development*

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# Lesson Plan 1 - Course Start

**Goals:** Welcome participants, complete introductions, frame the structure and agenda for the course.

**Time:** 45 minutes

**Outcomes:**

- Welcome participants to the course and complete brief introductions;
- Familiarize participants with the course structure, agenda and competencies;
- Introduce the terrain and scope of a Top Rope Rock Leader;
- Explain to students the instructing methodology for the course; and
- Model the Alpine Club of Canada waiver delivery policy and complete participant waivers.

**Itinerary:**

10 minutes: Introductions

- Introduce instructor(s) and highlight their background(s) and experience
- Participants introduce themselves and share their backgrounds and experience as well as their expectations for the course

15 minutes: Course Structure and Competencies

- Review the course agenda and structure
- Highlight the anticipated participant outcomes and competencies
- Self and instructor assessment

5 minutes: Terrain and Scope

- Reiterate the terrain and scope of the Top Rope Rock Leader
  - single pitch top rope climbing terrain
  - established top rope climbing sites
  - minimal objective hazard

5 minutes: Instructing Methodology

- Describe, Demonstrate, Do
- Instructor(s) will discuss, then model, then coach participant practice of the skills

10 minutes: Waivers

- Review the ACC waiver delivery policy and waiver delivery best practices
- Participants complete ACC waivers

## Lesson Plan 2 - Front Country Risk Management

**Goals:** Introduce participants to the common risks associated with top rope climbing outings and local emergency response procedures.

**Time:** 30 minutes

**Outcomes:**

- Participants will be familiar with the common top rope climbing risks;
- Establish basic safety protocol for managing risk throughout the course; and
- Outline local emergency response procedures and course protocols.

**Itinerary:**

10 minutes: Explore common risks associated with top rope climbing activities

- Rockfall
- Weather (heat, cold, wind, precipitation, electrical storms)
- Working in proximity to an edge and fall hazard
- Noxious plants and dangerous wildlife

10 minutes: Review risk management protocol

- Rockfall management (natural vs. participant generated)
- Helmets anytime there's an overhead or fall hazard
- Lanyards or belays anytime activities are being completed near an edge or a fall hazard is present
- Environmental and wildlife considerations
- Encourage everyone to voice concerns and promote a 'team' approach to managing risk

10 minutes: Local emergency response procedures

- Confirm emergency contacts, allergies and medications for each participant
- Confirm local contact or cell numbers for each participant
- Mandatory equipment for each participant
  - personal first aid kit
  - tarp or emergency shelter
  - communication device
  - appropriate clothing (layering)
- Local organized emergency response for the area
  - Emergency management discussion (name, location, nature of emergency, etc.)
  - Contact numbers for local search and rescue agencies



## **Lesson Plan 3**

# **Planning a Top Rope Outing**

**Goals:** Discuss the key aspects in the planning process of a top rope outing. Introduce participants to weather information resources and basic weather forecasting.

**Time:** 45 minutes

**Outcomes:**

- Participants will understand the process used for designing a top rope outing;
- Outline instructor to participant pre-trip communication requirements;
- Explore the current weather patterns and weather resources;
- Familiarize participants with weather maps and basic forecasting; and
- Discuss the pre-trip risk assessment process.

**Itinerary:**

15 minutes: Designing a top rope outing

- Pre-trip planning (objectives, venue, potential routes, ratios)
- Access (issues, permits, group size, environmental impacts)
- Group equipment (anchors, ropes, etc.)
- Contingency planning

5 minutes: Communicating with participants

- Prerequisite requirements or previous experience
- Level of risk and notable or non-routine hazards
- Participant equipment and clothing requirements
- Meeting time, location and contingency plans

10 minutes: Current weather

- Online resources
- Current conditions
- Short range forecast (for the duration of the course)

15 minutes: Basic weather forecasting

- Atmospheric pressure and pressure mapping
- Cloud formation, identification and significance
  - approaching warm fronts
  - approaching cold fronts
  - rapid changes vs. gradual changes
- Jet streams and the coriolis effect

5 minutes: Pre-trip risk assessment

- Weather, Objectives, Current Conditions, Knowledge
  - suitability to proceed with outing

## **Lesson Plan 4**

### **Group Briefings (meeting point)**

**Goals:** Define what information needs to be conveyed to participants at the meeting point before proceeding to the climbing site and clarify group travel expectations.

**Time:** 10 minutes

**Outcomes:**

- Familiarize participants with the meeting location information dissemination process;
- Discuss group equipment distribution; and
- Outline group travel expectations and environmental concerns.

**Itinerary:**

4 minutes: Group welcome and review of the outing

- Introductions (participants and instructors)
- Review of the outing and discussion of significant risks/hazards
- Collection or administration of waivers and medical forms

2 minutes: Equipment checks and group equipment distribution

- Participant equipment check (everything needed for the day and in good repair)
- Group equipment distribution

4 minutes: Group travel expectations

- On trail (minimize braiding and erosion)
- Pacing
- Distance and time to the climbing site
- Breaks to adjust clothing and hydrate
- Immediate environmental concerns (human waste, litter, weather, wildlife encounters and noxious plants)

## **Lesson Plan 5**

### **Group Briefings (climbing site)**

**Goals:** Define what information needs to be conveyed to participants at the climbing site before commencing the day's activities.

**Time:** 10 minutes

**Outcomes:**

- Familiarize participants with the climbing site information briefing process;
- Discuss the organization of personal and group equipment;
- Outline site-specific risks and hazards as well as basic mitigation strategies; and
- Highlight site-specific environmental and ethics concerns.

**Itinerary:**

2 minutes: Organization of personal and group equipment

- Where to place personal gear (packs, keeping food contained, etc.)
- Where to place group gear (ropes, anchors, etc.)

4 minutes: Site specific hazards and risk management

- Rockfall (helmet use, terrain to avoid)
- Edges and fall hazards (safe zones and belayed access only areas)

4 minutes: Environmental and ethical concerns

- Human waste and litter
- Impacts on other users (crowding, noise, etc.)
- Erosion and rock polishing
- Wildlife encounters
- Noxious plants and insects
- Weather factors (heat, cold, wind, precipitation, lightning, etc.)

## **Lesson Plan 6**

# **Equipment Strengths and Limitations**

**Goals:** Discuss the strength and limitations of commonly used pieces of climbing equipment.

**Time:** 30 minutes

**Outcomes:**

- Develop a basic understanding of equipment strengths;
- Highlight factors that impact or decrease the strength of equipment; and
- Outline strength requirements for basic top rope climbing applications.

**Itinerary:**

10 minutes: Explore equipment and minimum strength standards

- Ratings, CE or EN strength standards, what is rated vs. what is not
- Sewn slings (22kn)
- 1 inch tubular webbing (~26kn)
- 7mm cord (~10kn)
- Carabiners (20kn or 7kn gate open or cross loaded)
- Single dynamic or static climbing rope (22kn)
- Harnesses (15kn belay loop or feet first load, 10kn headfirst load)
- Belay devices (not currently rated)
- Bolts and hangers
  - Stainless bolt 3/8" (25kn radial or 17kn axial)
  - Carbon steel bolt (5500lbs radial or 5150lbs axial)
  - Stainless hanger (25kn or 40kn depending on brand)
  - Glue in bolt (25kn or 40kn depending on brand)

10 minutes:

- Knots in nylon goods (reduction of up to 50% in spectra and dyneema)
- Gates open and cross loading of carabiners
- Age and wear (lifespan of 5 years for most nylon goods)
- Corrosion in bolts and fixed hardware

10 minutes: Strength requirements for climbing systems

- Human body cannot withstand more than 9kn – 11kn
- 2X redundancy in climbing systems, therefore 22kn is the strength top rope systems should strive to achieve
- Application must be aligned with manufacturers recommendations

# Lesson Plan 7

## Anchors

**Goals:** Outline the basic criteria for the assessment of fixed hardware and natural anchors. Define commonly used top rope anchor construction and evaluation techniques.

**Time:** 50 minutes + 40 minutes practice

**Outcomes:**

- Develop an understanding of what criteria to use when assessing fixed hardware and trees for use in the construction of top rope anchors;
- Gain competency in the construction of parallel and self-adjusting anchor configurations;
- Highlight how to connect different material to construct an anchor; and
- Outline the criteria used to assess the quality and strength of a top rope anchor.

**Itinerary:**

10 minutes: IDEALS Acronym

- Integrity
  - quality of the rock or soil
  - quality of the placement
  - size of the bolt or tree
  - direction of loading
  - minimization of multiplication of force
- doubled, equalized, angle, limited extension, sharp edges

10 minutes: Parallel anchor construction

- Construction of a simple parallel anchor
  - pros (shelf, limited potential for shock loading)
  - cons (does not adjust to the load, can not be pre-rigged)

10 minutes: Self-adjusting anchor configuration

- Construction of a self-adjusting anchor
  - pros (adjusts to the load, can be pre-rigged)
  - cons (no shelf, increase potential for shock loading)

15 minutes: Anchors from tree

- Connecting to a rigging rope to a tree (basket hitched sling and locking carabiner)
- Creating a redundant master point

5 minutes: Adding an extension to an anchor

- Basket hitched sling through the master point, tied to create redundancy

40 minutes: Coached participant practice

## **Lesson Plan 8**

# **Anchor Access and Tethering**

**Goals:** Discuss anchor access methods and use of tethers as a means of connecting to an anchor.

**Time:** 30 minutes

**Outcomes:**

- Develop an understanding of anchor access from below and from above methods;
- Outline and identify suitable scrambling terrain for anchor access; and
- Highlight the use of static and dynamic tethers and their applications.

**Itinerary:**

5 minutes: Discussion specific to accessing anchors from below

- Scramble approach in 3<sup>rd</sup> class and low 4<sup>th</sup> class terrain
- Lead approach on bolted sport routes

5 minutes: Discussion specific to accessing anchors from above

- Scramble approach in 3<sup>rd</sup> and low 4<sup>th</sup> class terrain
- Belayed approach with experienced belayer

20 minutes: Tethering

- Connecting a tether to the harness
- Static tethers (slings)
- Dynamic tethers (climbing rope, Purcell prusik, commercially manufactured)
- Clove hitching to an anchor with the climbing rope (adjustable and dynamic)

## **Lesson Plan 9**

### **Rope Management for Top Rope Climbing**

**Goals:** Explore several methods of coiling and preparing ropes for a top rope outing to increase efficiency. Discuss rope throwing techniques.

**Time:** 30 minutes

**Outcomes:**

- Gain experience preparing ropes for a top rope outing; and
- Explore several methods for effectively and efficiently getting ropes to the ground when accessing anchors from above.

**Itinerary:**

10 minutes: Center coiling a rope

- Lap coiling to the center of the rope
- Choking the coils to keep them bound and packable
- Splitting the center coil for throwing

10 minutes: Throw bag stacking in a rope bag

- Rope ends tied to the bag
- Rope stacked ends to center
- Center easily identifiable

10 minutes: Throwing ropes

- Make sure the area below is clear
- Call 'rope' then pause
- Lap coils – throw middle then ends
- Rope bag – open and throw the entire bag

# Lesson Plan 10

## Top Rope Lesson Pedagogy

**Goals:** Outline the delivery and structure of a basic top rope climbing lesson. Highlight the key risk management and mitigation strategies commonly used with first time belayers.

**Time:** 75 minutes

**Outcomes:**

- Gain a clear understanding of the typical format and flow of a basic top rope climbing lesson; and
- Develop an awareness of the common risks novice belayers present and how to best manage them.

**Itinerary:**

5 minutes: Global demonstration

- Introduction, goals, objectives
- Demonstration of a top rope climb

10 minutes: Harness topic

- Properly sized and secured
  - above the hips
  - outside of clothing
  - correctly fastened

10 minutes: Figure eight follow through topic

- Tied correctly and close to the harness

20 minutes: Belay device set-up and ground practice topic

- Correctly set-up and connected to the harness
- Constant control of the brake rope and maintenance of the most mechanically advantageous position
- Assisted braking vs. manual braking vs. Italian hitch

10 minutes: Checks, communication and lowering topic

- Self check, partner check, top rope rock leader check
- Climbing communication - On belay, Climbing, Climb-on & Take, Got, Lower
- Lowering process with an assisted braking device, a manual braking device and an Italian hitch

20 minutes: Discussion specific to the risks novice belayers present and how to manage them

- System checks
- Participant demonstrated competency assessment
- Back-up belays
- Belay device selection



# Lesson Plan 11

## Top Rope Climbing Hazard Management

**Goals:** Discuss the common objective hazards associated with top rope climbing activities and the various risk management strategies that can be applied to mitigate them.

**Time:** 15 minutes

**Outcomes:**

- Increased ability to recognize top rope climbing activity specific hazards as they present themselves; and
- Understanding of the commonly used mitigation techniques.

**Itinerary:**

10 minutes: Rock related hazards

- Loose rock
  - alternate high point
  - directionals
  - coaching and cleaning
- Sharp rock and edges
  - directionals
  - anchor extensions
- Ledges, corners and overhangs
  - directionals
  - belay tension
  - point of aid

5 minutes: Human related hazards

- Communication challenges
- Novice belay skills
  - Use of back-up belayers
- Weight differences between climber and belayer
  - belayer positioning
  - use of ground anchors

## **Lesson Plan 12**

### **Top Rope Site Teardown**

**Goals:** Define site tear down procedures for use either when moving from one site to another or when completing a top rope outing.

**Time:** 10 minutes

**Outcomes:**

- Discuss the process used to retrieve the climbing ropes and anchors once the top rope climbing activities have been completed; and
- Discuss the process used to thread and anchor and rappel.

**Itinerary:**

2 minutes: Retrieving ropes

- Pulling ropes down from below vs. retrieving ropes from above when practical
- Applying forethought when organizing the ropes so they're prepared for the next outing

8 minutes: Threading an anchor to lower or rappel

- Secure to the anchor
- Secure the rope
- Untie and thread
- Lower or rappel

## **Lesson Plan 13**

### **Basic Climbing Movement Pedagogy**

**Goals:** Outline the delivery and structure of a basic climbing movement lesson. Highlight the commonly taught techniques and the key concepts associated with each.

**Time:** 75 minutes

**Outcomes:**

- Gain a clear understanding of the typical format and flow of a basic climbing movement lesson; and
- Develop an awareness of the common risks novice belayers present and how to best manage them.

**Itinerary:**

15 minutes: Teaching theory discussion

- Describe, demonstrate, do

10 minutes: Global demonstration

- Introduction, goals, objectives
- Demonstration of a top rope climb requiring a variety of movement skills

10 minutes: Edging topic

- Placement (roll toe onto hold)
- Positioning (parallel to positive aspect of the hold and ankle 30 degrees out)
- Weighting

10 minutes: Smearing topic

- Placement (convexities and concavities, ball of the foot)
- Positioning (heel low, foot perpendicular to the hold)
- Weighting (center of gravity over the feet)

10 minutes: Balance and weight shift topic

- Triangular balance theory
- Center of gravity and weighting and unweighting

15 minutes: Crack climbing and jamming techniques topics

- Finger, hand and fist jamming
- Crack climbing foot placement
- Body positioning and stability

5 minutes: Key concepts review

- Body positioning
- Legs as the drivers of upward momentum

# Lesson Plan 14

## Top Belaying

**Goals:** Explore top belaying techniques and applications as well as means of managing the risk associated with belaying from above.

**Time:** 45 minutes

**Outcomes:**

- Develop an awareness of suitable top belaying terrain;
- Gain an understanding of anchor construction considerations when top belaying;
- Explore top belaying belay techniques; and
- Discuss belayer positioning when top belaying.

**Itinerary:**

5 minutes: Discuss suitable top rope belaying terrain

- No access to the base of the cliff
- No loose rock
- Known routes
- High quality and easily accessible anchors
- Within the abilities of the participants

10 minutes: Anchor construction

- Parallel anchor configuration (shelf)
- High integrity anchor
- High master point to facilitate belaying

15 minutes: Top belaying techniques

- Direct anchor belaying
- Italian hitch for ease of reversibility
- Rope ends secured
- Rope management (stacked, no loose terrain or rock)

10 minutes: Belayer positioning

- Tethered to an anchor if a fall hazard exists
- Extension to allow for visual view of the climber

## **Lesson Plan 15**

### **Improvised Rescue from Above**

**Goals:** Outline and practice an improvised rescue system that could be applied to raise a stranded or injured climber to the top of the cliff in a top belaying scenario.

**Time:** 2 hours + 2 hours practice

**Outcomes:**

- Develop an awareness of the components of an improvised rescue system;
- Explore the application of improvised rescue system components; and
- Practice and apply improvised rescue systems and skills.

**Itinerary:**

40 minutes: Discuss and demonstrate improvised rescue system components

- Tying off an Italian hitch
- Constructing a 3:1 raising system
- Descending a fixed line via rappel
- Constructing an improvised chest harness

35 minutes: Discuss and demonstrate rope ascending

- Two prusik rope ascending system
- Converting a rappel into a rope ascent

45 minutes: Discuss and demonstrate entire improvised rescue system

- Tie off an Italian hitch top belay
- Descend a fixed line
- Apply an improvised chest harness to an injured climber
- Ascend a fixed line
- Construct a 3:1 raising system
- Complete a raise

120 minutes: Coached participant practice

- Participants practice of improvised rescue systems and skills