Tutorial: Ascending Steep Hard Snow

A. Preparation
1. Put ski poles away
2. Get out ice ax
   - Uncover pick and adze
   - Attach leash to wrist
3. Put on gloves to protect hands from abrasion on snow
4. Put on crampons before they are needed
   - Assure proper fit and secure attachment

B. Footwork with and without crampons
1. Kick steps if possible
2. Look for natural footholds in snow
3. Chop steps if necessary

C. Footwork when flat-footing with crampons
1. Keep all points in contact with snow
2. Stay in balance – don't lean in
3. Let ankles flex
4. Exaggerate knee bend

D. Ice ax technique
1. Self-belay
2. Transition ice ax technique as conditions change
   - Cane position
   - Stake position
   - Low dagger position
   - Anchor position

E. Self-arrest
1. Arrest immediately – before speed increases
2. Keep crampon points off snow

Tutorial: Descending Steep Snow

A. Plan the descent
1. Consider:
   - Snow conditions
   - Slope, aspect, and time of day
   - Run-out
   - Route
2. Decide if crampons are needed
3. Choose facing in or out
4. Put on gloves

B. Plunge stepping
1. Step aggressively
2. Lean forward on slightly bent knees
3. Lead with the heel; toe up
4. Sense snow conditions and anticipate trouble
5. Be prepared to self arrest

C. Self-belay facing out
1. Plunge step with well-bent knees
2. Place ice ax low for self belay

D. Self-belay facing in
1. Plant ice ax firmly
   - Use existing holes to save energy
   - Use stake position if possible
   - Use pick if spike won't drive into the snow
2. Use existing steps for greater security

E. Self-arrest
1. Arrest immediately – before speed increases
2. Keep trying to arrest – don't give up
3. Keep crampon points off snow

Tutorial: Avalanche!

A. Before the trip
1. Know the snow pack/weather history
2. Check the current weather forecast
3. Check the current avalanche forecast (if available)
4. Consider the avalanche hazard before leaving home

B. Assessing snow stability
1. Hazard is greatest on:
   - Wind-loaded slopes (especially leeward)
   - Convex slopes
   - 30-45° slopes
   - Open slopes, especially slide paths
2. Hazard increases in these weather conditions:
   - Storms
   - Rain or snow greater than 1 inch per hour
   - Wind greater than 15 mph
   - Increasing temperature
3. Look and listen for signs of avalanches
   - Fresh avalanche debris or avalanche paths
   - Snow sluffs
   - Hollow sound when stepping on snow (whomp!)
   - Slides while you watch (time to go home)

C. Routefinding
1. Ridges are safest
2. Traveling on windward slopes and in trees reduces risk
3. Avoid cornices
4. Move quickly across suspect terrain
   - Put on warmer clothes
   - Travel up or down – do not traverse
   - Move one at a time
   - Post a lookout

D. If you are caught in an avalanche
1. Fight to stay on top – "swim"
2. Grab trees or brush
3. Get a hand above the surface and a hand in front of your face
4. Remain calm

Tutorial: Using Personal Anchors

A. Making a personal anchor

1. Double runner or daisy chain
2. Girth hitch to harness
3. Locking carabiner
4. Wrap around waist or clip in middle while climbing

B. At rappel stations
1. Connect to anchor when:
   - when you are waiting to rappel (if exposed)
   - while you are rigging your rappel set-up
2. Disconnect after rappel set-up is complete

C. At belay stations (optional)
1. Connect to belay anchor if following (then you are "off belay")
2. Connect the climbing rope to the main anchor (Don't belay off the personal anchor).

Tutorial: Quick Belays

A. When should you use a quick belay?
1. When requested by a party member
2. Short sections of steep snow or ice
3. Marginal snow bridges

B. Quick belays on rock
1. Tie into the rope (both belayer and climber)
   - Use harness or bowline around waist
2. Set up a quick anchor
   - Anchor to a rock, horn, or tree
   - Set up a strong stance; braced against a rock or tree if possible
3. Use a quick belay method with no slack
   - Provide tension
   - Hip belay
   - Friction around a rock horn

C. Quick belays on snow
1. Tie into the rope (both belayer and climber)
   - Use harness or bowline around waist
2. Set up a quick anchor
   - Ice ax or picket
   - Sit in a moat
3. Use a quick belay method:
   - Boot/ax belay
   - Carabiner/Ice Ax belay
   - Hip belay

D. Consider simul-climbing moderate terrain
1. Running belays may speed progress
   - Use rock (best) or snow protection
   - Weaving around natural features may work
2. Fixed lines for big parties or short sections

Tutorial: Glissading

A. Assess the slope
1. Run-out
2. Visible route
3. Steepness and snow conditions
4. Snow stability
5. Rocks, moats, and other hazards

B. Positioning yourself for a sitting glissade
1. Dress properly
   - No crampons
   - Gloves to protect your hands
   - Rain pants – pros and cons
2. Hold the ice ax properly
   - Shaft to one side and parallel with the direction of travel
   - Spike trailing as a brake
   - Pick pointed away from your body
3. Leg positions
   - Knees bent with feet flat for most control
   - Knees straight for speed in soft conditions

C. Controlling speed
1. Put pressure on the spike to slow down
2. Stop by braking with the spike, then dig in your heels
3. Self arrest if you can't control speed with the spike
   - Roll away from the spike
4. To avoid obstacles, stop, move over, and continue your glissade

Tutorial: Crevasse Rescue

A. Rope management on glaciers
1. Keep rope extended (but not clothesline tight)
2. Remain spread out at stops
3. Belay climbers across weak/suspect snow bridges

B. Immediate action if someone falls in a crevasse
1. Team arrest!
2. Establish communication topside; alert other teams
3. Transfer weight to middle person
4. End person sets up initial anchor
5. Transfer weight to initial anchor; end person guards
6. Middle person constructs main anchor

C. Approaching the crevasse
1. Use Prusik for self-belay
2. Take equipment to crevasse lip
   - Pulley
   - Hero loop
   - Ice ax and anchor for crevasse lip
3. Establish voice communication with fallen climber

D. If you are in the crevasse
1. Stay calm
2. Hang on to your ice ax
3. Clip everything into the rope
4. Remove pack and hang it from the rope
5. Pull hood over head; add clothes if possible

E. Carry out the rescue
1. Engage the brain
2. Implement a rescue method
   - Walk or climb out
   - Prusik out
   - Direct pull
   - "C" pulley
   - "Z" pulley

Tutorial: Loose Rock

A. Group travel
1. Wear helmets
2. Yell "Rock!" if a rock is dislodged
3. Avoid the fall line of others
4. Travel one at a time, others stay in a protected area
5. Or, travel as a tight bunch

B. Route finding
1. When possible, avoid the loosest areas
2. Assess stability of rock in general area
3. Avoid areas with natural stone fall
4. Watch out for rock fall from other parties

C. Step carefully
1. Plan where you will step to avoid loose rocks
2. Test rocks and holds that may be suspect
3. Step onto suspect rocks with light pressure, applied into the slope rather than downslope
4. Avoid kicking rocks when lifting your feet

D. Use your hands
1. Test handholds by thumping or pushing
2. Pull gently on suspect holds – down-pressure may be effective
3. Carefully move loose rocks that come off in your hand