Section 10:
Climbing and High Ropes
Official Manual

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pennsylvania
DEPARTMENT OF AGRICULTURE
AMUSEMENT RIDE SAFETY DIVISION

Camp Fitch YMCA

Company Owner ID: 10883

Registration ID: 18255

Type: Traveling Show

Current Amusement Park Rides

Name of Ride	**Manufacturer**	**PA ID**	**Serial #**
Indoor Climbing Wall	Camp Fitch YMCA	15683	CF 0001
Outdoor Climbing Tower	Camp Fitch YMCA	15684	CF 0002
Zipline	Universal Ropes Course Builders	13829	FITCH ZIP 01

Climber Requirements

Climbing Walls (Outdoor and Indoor)

- Ages- 5 and up. If younger, they must be able to fill out and properly fit the harness.
  - If using an auto-belay, an attachment 'tail' may be needed for lighter participants.
  - Under the age of 5, a full body harness needs to be used, or Adventure Programs Director needs to be present, or Lead has been given permission.
- Weight Limit Maximum- 250 pounds or Belayer Comfort
- Minimum Height- 2 feet (24 inches)

Off-Site Rock Climbing (Trips)

- Ages 9 and up.

Zipline

- Age- 10 and up for (Retreats), Schooner group and up (Summer), 5th grade class (OE)
- Weight- 60 to 250 lbs.

High Ropes

- 6th grade and up.
- Weight Maximum: 250 lbs.

Staff Roles and Responsibilities

Special Note Regarding Belay Check Offs
Before leading climbing, all staff members teaching or assisting must have their skills verified and evaluated by a designated Course Manager (Adventure Programs Director or Climbing Captain). Trip Leaders who have been through the adventure trips program are allowed to help train others, but the individual participant pursuing belay training must be checked off by the said Course Manager.

Course Manager:
This person is overall in charge of the amusement rides and climbing facilities at camp (Low Ropes, High Ropes, Climbing Towers, Zipline). They will run training and assessments for the adventure staff and will oversee the monthly safety check and replacement of all climbing equipment. Course Managers are the only staff able to set up and run the rappel stations and train people how to operate the speed wall during the summer.

- Year Round — Adventure Programs Director
- Summer Only — Climbing Captain

Lead Climbing Facilitator:
This person is permitted to open the climbing walls and is overall in charge when the course manager is not present. They have the responsibility to ensure that the climbing elements are set up correctly and all other staff are working within the policies and procedures and using correct techniques. The Lead is also in charge of the group management when the climbing facilities are open and respond to emergencies with the correct rescues. They must have both a charged walkie talkie and a charged cell phone. It is possible to be checked off at the indoor wall only.

Assistant Facilitator (Belayer):
This person's role is to provide support to the Lead Climbing Facilitator. They are also to ensure that climber's equipment is fitted correctly. They are to belay with the correct technique, PBUS (Pull, Break, Under, Slide). Must have a charged walkie talkie and cell phone.

Trip Leader:
This person is hired primarily to lead off-site adventure trips that sometimes feature climbing on real rock. This person will have a little more climbing background and experience. Though they are under the direction of the Climbing Captain during summer camp, while assigned on-camp property; these Trip Leaders can help assist belay training year-round. Most Trip Leaders are checked off to also be Lead Climbing Facilitators.

Zipline Lead:
This person has completed the three-day course on how to safely run the zipline and knows how to perform certain rescues from height. The selected person(s) must become a Lead Climbing Facilitator before being trained to run the zipline. That is the one prerequisite.

Progression of Climbing Staff

Belay Certification (General)

- Show ability to belay under the PBUS system.
    - P= Pull
    - B= Break
    - U= Under
    - S= Slide
- Understand all policies and procedures and implement them.
- Understand the session outline and assist in the delivery of session (teaching a class).
- Demonstrate correct spotting technique for boulder wall.
- Demonstrate how to open and close climbing metal and use them in the right orientation.
- Demonstrate the correct fitting of harness and helmets.

Assessment:

1. Belay an item (book bag, bucket, etc) while using PBUS.
2. Belay three participants under supervision while being back-up belayed.
3. Observe a class where they facilitate the ground school.

Lead Certification (Climbing Wall)

1. Observation of belay technique during a class (different observation than belay cert).
2. Belay a minimum of 10 hours (rope log).
3. Teach a minimum of 5 classes/activity periods (1 being observed).
4. Staff member is able to set up correctly one rope under supervision.
    a. Walk up to top, check rope, put rope through sheer reduction device, drop rope.
    b. Tie all knots (climber figure 8, anchor figure 8 follow-through, anchor figure 8)
    c. Indoor Wall (p-cord) and Anchor rope (truckers hitch).
5. Prussik belay transfer in-service training
6. Ability to set up for a group (in real time) by themself and later checked by Course Manager.
7. Understand the policies and procedures and implement them, correcting belay assist co-worker.
8. Understand the procedures of recording incidents and the communication line.

High Rope Element Lead

1. Have been made a Lead at the Rock Wall.
2. P-cord set up in service training.
3. Set up of element correctly without participants, later checked by Course Manager.
4. Observation of two classes/ activity blocks where they have set up the element.
5. Show rescue technique (unique to each element).

*Adventure Trip Leader

- Trained to belay on real rock, off-site locations

*Adventure Trip Captain

- Trained to set up anchors for real rock, off-site locations

Climbing Captain

1. Has belayed a minimum of 80 hours (School Year Programs) or two seasons (summer camp) or specifically hired as an Adventure Trip Leader (no experience required).
2. Understands the EAP and how to rescue participants in every trained element (walls, zipline).

Zipline Lead

1. Must already have become a Lead Climbing Facilitator at both the indoor and outdoor climbing walls and is highly trusted by the Adventure Programs Director.
2. Have logged a minimum of 20 hours belaying
3. Be trained first on how to assist the Zipline
    a. Be trained on how to belay from above the climber
    b. Be trained on zipline commands
    c. Be trained on how to disconnect proper gear from the line.
4. Zipline Leads (the staff that send the participants)
    a. Complete Zipline Training (2 Days)

Zipline Lead Training

- Day 1
    - Teambuilding session
    - Knowledge of gear used and how to place it on the zipline
    - Demonstration on how to use the zipline
    - Every trainee sends 3 people down the zipline with course manager supervision
- Day 2
    - Performing rescues with the ladder system
    - Rappelling set up
- Day 3
    - Performing rescues by going out to stranded participant
    - Rescue an unconscious participant

Belaying

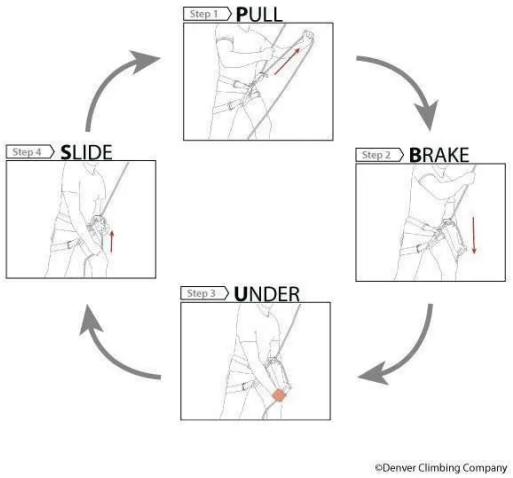
Belay is a term used to 'relay' information. It is passed down from an old, World War I expression meaning "You got my back", "Yes, I got your back." For climbing purposes, it helps keep the participant safe. The person holding the rope is the belayer and the participant is the climber.

The PBUS Technique

PBUS: Pull, Brake, Under, Slide: A universal rule to belaying is that your brake hand, which is palm down on the brake strand of the rope, should never come off the rope. The PBUS method is a tried-and-true technique that will accomplish this while providing a safe belay.

1. **Pull:** Pull down on the climber's rope with your guide hand (the one on the climber's end of the rope) to remove slack as the climber moves up, and at the same time, pull out with the brake hand to get the slack through the belay device.
2. **Brake:** Put the brake strand in the brake position, which is down in front of you. This puts a bend in the rope at the belay device that will keep the rope from moving through it.
3. **Under:** Take your guide hand off the climber's strand and place it on the brake strand under your brake hand, meaning it's lower on the rope.
4. **Slide:** With your guide hand now tightly grasping the brake strand, slide your brake hand up the brake strand (without removing it from the rope) so it is 5 inches away from the belay device. Put your guide hand back up on the climber's strand.
5. **Repeat:** the Belayer keeps doing this PBUS motion each time the climber moves up and creates slack in the rope.

Great Resource: REI
https://www.rei.com/learn/expert-advice/belay.html



Belay Device Set-up

Take a bite of rope and put it through one side of the ATC (air traffic control device), clip a locking carabiner through the rope and wire on the belay device (See figures A-F). Be sure to match the illustration printed by the manufacturer on the belay device. The non-climbing end of the rope should be oriented in the ATC so that the break end of the rope points towards the ground (Figure F).

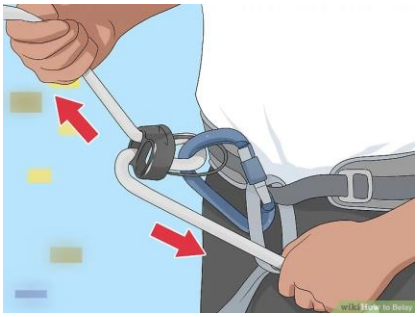
(Figure A)

(Figure B)

(Figure C)

(Figure D)

(Figure E)



(Figure F)

Belayer and Participant Safety Checks

Final Safety Checks

Preparing for Climbers. Before each participant climbs the belayer is responsible for double checking each safety system. Double check the entire system by starting at the belayers feet and working up the rope, then back down towards the climber, ending with the climber's feet.

1. Start with belayers feet. Check that shoes are secure. Adventure sandals or closed toed shoes required. Campers cannot climb in Chaco's, or flip flops. Keens are not ideal, but okay if the camper does not have anything else to wear.
2. Belayer harness: Waist belt needs to be sitting above hips. Check that all buckles are doubled back.
3. All shirts and sweaters need to be tucked into harness with zippers zipped up. For cold weather, encourage the camper to remove heavy coat so that harness fits snugger.
4. Belayers helmet: tight enough on head so that when you hang your head upside down the helmet stays on without a chin strap, but comfortable enough to not cause a headache.
5. Check that the helmet is sitting on forehead just above eyebrows with chin strap snug enough as to not slip over chin but loose enough as to not choke.
6. Check that all hair is tied back. Necklaces are tucked in and rings are removed. During outdoor education, make sure no kids are climbing with a necklace lanyard.
7. Check that ATC is oriented in the correct direction with carabiner locked and loaded down.
8. Check for a stopper knot at the end of the rope.
9. Check anchor system. The anchor is attached to a belay loop with a carabiner.
10. Webbing is hitched to eye bolt or static rope.
11. Rescue prusiks are attached to lead facilitator or within arm’s reach.
12. Check rope for and twists. follow rope down to climber.
13. Check that rope is tied with a dressed figure 8 follow through knot with a barrel knot backing up the figure eight.
14. Check that the carabiner is locked and loaded with the gate away from the climber. Ask the climber to do a “squeeze check” showing you that the carabiner is indeed locked.
15. Check the climber's helmet. The helmet should be snug, to where the chin strap cannot slip over chin.
16. Climber has hair tied back and Jewelry removed.
17. The climber is wearing closed toed shoes.

Australian Belay

Better known as a group belay. The Australian belay system can be used at the outdoor climbing tower only and only when the Course Manager is present as a fun, optional, group teambuilding experience. The purpose of the Australian belay is to incorporate the entire group in actively helping one participant climb. The belayers are tied in by prussiks to an extended loop in a figure 8 knot or bowline. The belayers then walk backwards as the climber climbs upward. When the climber wants to be lowered, they walk together back toward the wall.

Picture curtesy of 'Project Adventure'

Picture curtesy of 'High 5 Adventure Learning Center'

Auto Belay

If an auto belay is being used instead of a traditional belay, make sure the p cord (indoor wall) is out of the way and that no ropes are set up or in the way. When installing the auto belay at either the indoor wall or outdoor tower, make sure it is positioned per manufacturing standards and centered for the climb. Be sure to also install the ground clip-in anchors (big triangle tarp) to prevent the auto belay from coiling back up.

While using auto belays it is the policy at Camp Fitch YMCA to not use helmets. This is done to prevent a participant from injury/death by choking on the chin strap. The most common thing that happens if a helmet is worn is for it to get caught on climbing hold on the way down. This is the only time helmets are not worn at the climbing wall. Facilitators at the wall must wear a helmet while running the activity.

Pictures taken from perfectdescent.com

Auto Belay Procedures

- Unclip the climbing carabineer from the triangle bottom anchor point.
- Clip the climbing carabineer to the climber's harness.
- Climber is now responsible for saying only one command, “Climbing?” The facilitator then responds, “Climb Away.”
- When the climber is done climbing, either clip the carabineer to the next climber or back to anchor point.

End Of Day Storage

At the end of the day, the auto belay is coiled back into home structure by attaching a p cord to the carabineer. Detach the carabineer from the triangle ground anchor and slowly let the auto belay tether the coil by guiding it with the p cord.

Rainy Day Storage

If the auto belay tether gets wet or lightly saturated due to rain, fog, or very humid conditions- follow the end of day storage guidelines but additionally take the auto belay back to the indoor wall. Once it is at the indoor wall set it up as if you were to have climbers there. Stretch the tether out and clip it to the triangle anchor points. Let the tether stay stretched out overnight. This is the only time the auto belay is to be in this position overnight.

During high volume summer camp hours, let the auto belay stretch out overnight by staying connected to the anchor points. Only do this if rain will let up and there is below a 10% chance for rain during non-climbing hours.

After a rainy day, the Lead Facilitator or Course Manager should properly conduct an inspection of the equipment equivalent to what would be done during a monthly inspection.

Standard Operating Procedures

- The lead facilitator must check the set-up and knots prior to opening the wall.
- Safety orientation and instructions for wearing the equipment, and climbing are given by the climbing staff to the participants. This is known as a ground school.
- Prior to climbing, the belayer must check the harness, helmet, and carabiners of each climber (see daily inspection sheets).
- The belayer must ensure that all participants are ready verbally before climbing using the climbing commands. If a participant is not comfortable giving verbal commands, the belayer must develop a secondary means of communication (thumbs up, sign language, etc.)
- When the participant is ready to descend, the operator gives the directions: Grab the rope with both hands, sit back in your harness ("Give me all your weight"), place soles of feet on the wall and walk down the wall.

Safety Policies

All policies must be followed to ensure that the climbing wall is run in a safe manner. All Staff are role models when at the climbing facilities and should behave in a manner that demonstrates best practice.

- The wall is closed and "off limits" unless scheduled, and the course manager or lead facilitator is present.
- An emergency vehicle, radio or phone must be at the climbing venue during the wall's operation.
- All climbing equipment must be stored and locked unless the wall is open
- All staff must be approved by the course manager. Staff that are not checked off to belay must only supervise the participants. They are only allowed to help put harnesses and helmets on the participants.
- Participants not climbing or assisting others must remain out of the climbing area in the waiting area on or behind the benches.
- The course manager or lead facilitator is always the last to leave the site once all equipment is secured.
- All climbers must wear a properly fitted helmet and harness – These must be checked by the belayer prior to climbing. Helmets do not have to be worn when using auto belays.
    - For climbers with big, beautiful hair that makes it near impossible to wear a helmet, all facilitators should follow this simple procedure:
        1. Attempt to fit the helmet
        2. Ask the participant to adjust their hair
        3. Second attempt of fitting the helmet is made
        4. If the hairstyle cannot be altered to wear the helmet, participant is not allowed to climb.
- Climbers must wear appropriate clothing and footwear. Open-toed sandals are not permitted on the climbing wall but may be worn on the zipline.
- Staff will role model correct wearing harnesses and helmets.
- All staff must wear helmets.
    - Staff are welcome to use their own helmets and harnesses but only if they are checked by the Course Manager.
- First aid kit to be present at a climbing venue during wall operation.

Recording Documents

All Documents are kept in a binder at every climbing area or high rope element. Only lead certified staff trained to supervise the wall or element can inspect and record information. Lead staff must do the following during every session:

- Fill out the daily inspection log after completing setup.
- Record how many climbers/participants there were.
- Fill out and submit any accident/incident reports.

Facilitating

The belayer should be the first person in the system and the last person off the system. The belayer needs to be ready for the participant to climb at any time and should be ready to engage their brake hand at a moment's notice.

1. After the final safety check the Climber initiates climbing commands.
2. As Climber begins to climb the belays uses the belay method called “PBUS.”
3. When Climber is ready to lower, the belayer will take up all slack in the rope, ask the climber to put both hands on the rope, sit back in their harness, and use their feet to slowly walk down the wall, using their feet to prevent themselves from hitting rocks as they are lowered.

Typical Ground School

The ground school is a list of things one should cover before starting the class or activity block.

1. Welcome
    a. Catchy greeting or game
    b. Establish goal setting theme
2. Gear
    a. How to put on a helmet
    b. How to put on a harness
3. Spotting
    a. How to spot by using the ‘spoon ninja technique’
    b. Showcase the bouldering wall
4. Climbing Commands
    a. On Belay (Belay is on!)
    b. Climbing (Climb Away!)
5. Descending
    a. Lean back, feet on wall, hands on rope
    b. Face the wall
6. Climbing Tips
    a. Think feet first, hands second
    b. Hips closer to the wall
    c. Think of holds as puzzle pieces.

Climbing Commands

The belayer should be the first person in the system and the last person off the system. The belayer needs to be ready for the participant to climb at any time and should be ready to engage their brake hand at a moment's notice. The following commands are followed at the rock wall. Commands may be altered at certain high rope elements. In general, the climber is always the one to start the conversation. If the commands are not said, it is as though camp fitch staff are not present and the 'course' should be treated as so with no staff person present.

Climbing commands must be given per Pennsylvania law.

Climbing Participant	***Belayer***
On Belay?	Belay is On!
Spotter Ready?	Ready!
Climbing?	Climb Away!

1. Climber asks, "On Belay?" Belayer responds, "Belay is On!"
2. (Optional: Climber asks, "spotter ready?" Spotter says, "ready!")
    a. This is added during Outdoor Education classes only.
    b. Spotting is done by having a person behind the climber, holding both hands up (Spoons not Forks). This is just to help the climber at the beginning. Once the climber is above the spotter's hands, the spotter is good to leave.

3. Climber asks, "Climbing?" Belayer responds, "Climb Away!"
4. The belayer should not respond with "Belay is on!" until the slack is taken out of the rope, their brake hand is engaged, and they are ready for the climber to climb.
5. The belayer should not respond with "Climb on!" until the slack is taken out of the rope, their brake hand is engaged, and they are ready for the climber to climb.

Inspections

Before the wall opens each day, a daily pre-use inspection of the physical structure and equipment must be completed. See daily inspection sheets for each amusement ride.

Physical Structure

- Top and Bottom poles, beams and belay posts- The inspection is visual. Check for cracks and shifting of the pole or beam at the base.
- Landing area- The inspection is visual. Assess and clear the area of any obstructions.
- Through bolts- Check through bolts by touching face washers to verify there is no movement
- Top Deck- The inspection is visual and tactile. Prior to entering the deck, verify that each post of the deck is properly mounted to pier. Then look for any damage to the deck structure.

Equipment

All protective equipment used on the climbing walls must be inspected each time a climb is set up. Equipment is also inspected monthly by the course manager and yearly by an outside vendor in accordance with the standards published by the Association for Challenge Course Technology. Equipment must be inspected and retired according to the manufacturer's recommendations and the most recent edition of the ACCT Standards.

1. **Helmets**: Inspect all helmets. Monitor and report any broken straps, worn out webbing, missing pieces and other structural damage to helmets.
2. **Climbing Harnesses**: Inspect each harness. Check all webbing and stitching monitoring for wear, rips, flexibility, and overall condition of material. Check all buckles and metal, look for cracks, wear, rust, and deformities. See that all straps are self-backing. Check belay loop and monitor for abrasion and wear. If high ropes or zipline is in use, inspect full body harnesses.
3. **Ropes**: Inspect each dynamic climbing rope before tying knots or hanging ropes. Start by flaking out rope. Start at one end of the rope and work to the other end. Run rope through both hands. Feel for soft spots to the core, look and feel for deformities. Feel and look for wear to the sheath, note any burn marks, and cuts. Inspect visually and by touch. Look for glazing (melting of the outside of the rope), soft spots, hard spots, inconsistency in the diameter, cuts, fraying and excessive wear.
4. **Carabiners**: Inspect each carabiner daily. Check the locking system and gate. Observe wear, locking ability, rust, cracks, sharp edges or corrosion.
5. **Air Traffic Controller (ATC)**: Inspect all ATC's for sharp edges, cracks, rust, corrosion, or damage. Belay Devices- Significant scaring or wear, cracks or distortion, improper operation of moving parts, sharp edges.
6. **Webbing**: Inspect all webbing used for anchors. Check that the water knot is dressed. Check for wear and abrasions to the webbing.
7. **Shear Reduction Tubes (SRT)**: Inspect all SRT for rust, wear warped or uneven open ends.
8. **Anchors: Make sure rope is through rapid links attached to the eye bolts.** Monthly inspections should look for wear and tear on them.
9. **Personal Fall Arrest System**: Stitching for integrity, significant wear or glazing, misuse or activation of load limiting device. The yellow French Creek tethers is what these are.
10. **Auto Belay Devices: Make** sure auto belays are mounted and installed per manufacturing specifications. Make sure the tethers can retract and coil properly.

Emergency Procedures

- All climbers to be lowered to the ground.
- If required first aid will be administered by a certified staff member.
- The Course Manager or lead facilitator will activate the Emergency Action Plan (EAP) and contact the main office as quickly as possible by radio, phone or vehicle.
- Other staff present will supervise and keep other participants calm while the challenge course manager or lead facilitator tends to the emergency.

Inclement Weather Procedures

When it is not possible to climb at the 40 ft. tower due to inclement weather (ie. thunder, lightning, winds exceeding 30 miles per hour), the indoor climbing wall will be offered as an alternative. If weather occurs during the session- stop activity and move to closest indoor area (equestrian center). If safe to do so, take ropes down. Otherwise store equipment on the ground level and lock the climbing tower. Once inclement weather ceases, the lead facilitator should ensure all equipment is stored appropriately. This might mean hanging the ropes to dry outside Beecher, inside the interior room of Skeggs or another place made known by a Trip Leader from the Adventure Trips program.

Medical Emergencies

In a medical emergency, if a climber is off the ground, they must first be lowered to the ground. Once the climber is on the ground, the medical emergency is handled as per standard procedures.

Types of Rescues

Serious rescues on the challenge course are an infrequent occurrence. You may be called upon to participate in a rescue or emergency procedure at any time. It is your responsibility to be prepared. Whenever you are working, and someone is in the air- you should be wearing a harness and helmet. At the outdoor tower a complete rescue bag is kept assembled and available on the course whenever the course is in use. This kit is capable of lowering a participant from a course. The minimum components of this kit are listed below:

- Static rope (at least 120' long),
- 6 steel carabiners
- 1 alloy carabiner
- 2 prusik loops
- 1 dynamic daisy chain
- pliers
- rescue eight
- figure 8 rappel device
- rescue ladder
- rescue pulley
- belay device
- cutting device

Certain trained climbing staff (Course Manager and Zipline Leads) should be familiar with basic rescue techniques. Below are descriptions of some of the more common emergency situations and their solutions. You're thinking through the various situations and asking any questions before the situation arises ensure maximum safety

Emotional Rescue

A frozen climber is not physically in danger, but is frightened, perhaps petrified, and is in danger emotionally. Attention given to them should alter the technical operation and climbing opportunities of the rest of the group as little as possible. Eventually the climber will come down; but waiting for him or her out is a better option (though more time consuming) than physically forcing them down. The consequences of physically forcing a climber off a course, or to continue on the course, are extremely harmful and possibly even abusive. It could also be dangerous for all involved. Below is a step-by-step guide on how to resolve a climber refusing to come down.

- Establish or maintain a line of communication, one person talking to climber, preferably same person throughout, though may need to change communicator to fit climber's needs. The communicator can be the actual belayer although it may be more beneficial if done by a peer or someone they know. If the participants are belaying each other, it may be best for the communicator to be the actual belayer.
- Check in throughout the entire episode with questions like "How are you doing?" and "What do you need?" Always let them finish talking, pay attention, and have them repeat anything you did not hear or understand correctly. Talk with respect and patience.
- If the climber will not come down, you will need to wait for the person out and patiently keep a line of communication going. Should this happen, you may also need to navigate climbers and program so that the frozen climber does not prevent others from continuing to climb.

Belay Device Jam

This rescue is used if the belay device becomes blocked with an object. This tends to happen during lowing. If the object cannot be removed easily in a safe manner, the following steps should be taken

- Take in as much slack as possible
- Tie belay device off around carabiner.
- Tie prusik on to rope above the belay device, with a French prusik knot
- Attach prusik to anchor and then slide prussic up the rope as far as possible (not out of reach).
- Untie the belay device and clear the jam out of it. Keep one hand on the brake line during this process.
- Take in slack and tie belay device off around the carabiner.
- Slide prusik down rope and untie
- Untie belay device keeping one hand on the brake line
- Continue to climb/lower off

Weighted Belay Escape

This rescue technique is to be used when a climber is still climbing and the belayer needs to switch out with another belayer.

1) The new belayer kneels down beside the person belaying.
2) The new belayer sets up a new belay device down the rope on the brake end of the current belayer.
3) Tie a prusik hitch onto the climbing end of the rope, atop the current belayer's belay device. Next attach the prusik loop with a carabineer to the new belayer's harness
4) The current belayer loosens their grip and allows all the weight to be put on the prusik.
5) The current belayer then removes their belay device from the rope.
6) The new belayer now takes out all slack and belays themself up to the prusik as they slowly stand up.
7) Now with the new belayer in position, another staff member unties the prusik and attaches the anchor rope to the new belayer. If another staff member is not available, have someone hold the break portion of the rope while the new belayer undoes the prusik.

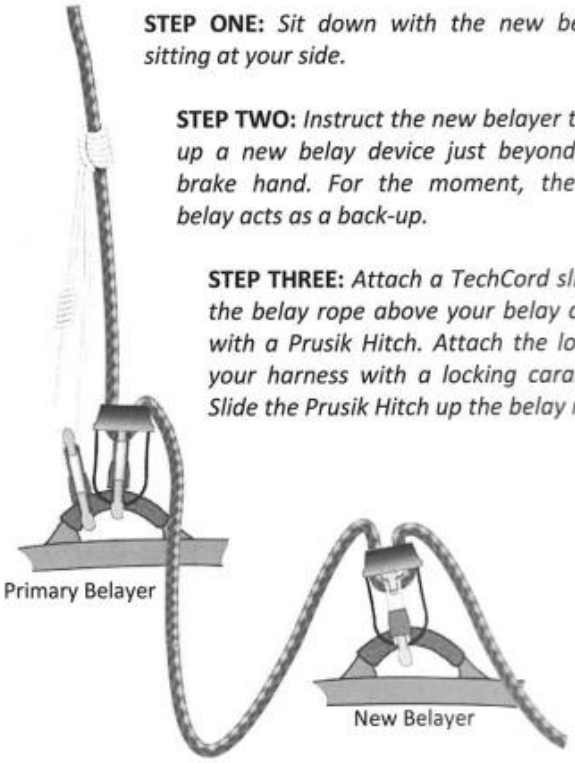
(See "Weighted Belay Escape" from High 5 Adventure Learning Center's *The High 5 Guide*)

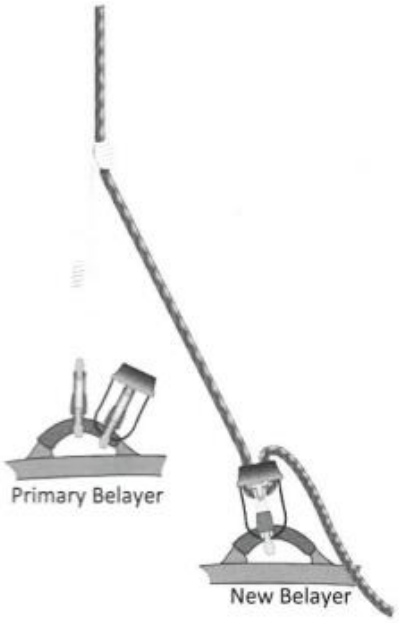
Weighted Belay Escape

STEP ONE: *Sit down with the new belayer sitting at your side.*

STEP TWO: *Instruct the new belayer to set-up a new belay device just beyond your brake hand. For the moment, the new belay acts as a back-up.*

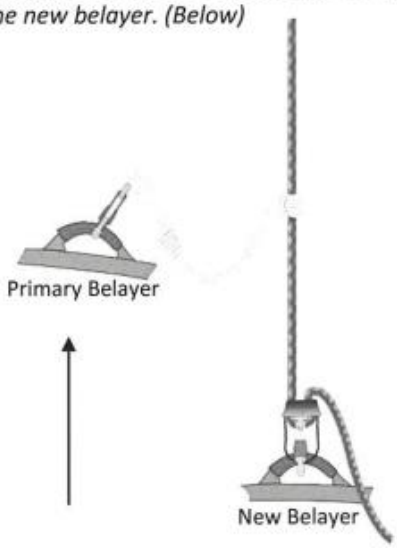
STEP THREE: *Attach a TechCord sling to the belay rope above your belay device with a Prusik Hitch. Attach the loop to your harness with a locking carabiner. Slide the Prusik Hitch up the belay rope.*

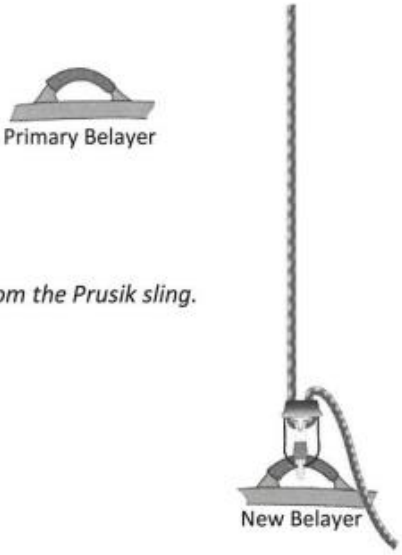




STEP FOUR: *Let slack from your belay device to transfer the weight of the climber to the Prusik Hitch. Remove your belay device. (Above)*

STEP FIVE: *Instruct the new belayer to remain seated as you stand. As you rise, slide the Prusik hitch up the belay rope to release tension and transfer the load to the new belayer. (Below)*





STEP SIX: *Detach from the Prusik sling. (Right)*

Amusement Ride Set Up

Indoor Climbing Wall (PA #15683)

- Equipment for each climb:
  - Rope
  - Set of three aluminum carabineers (one with a captive eye hook)
  - Belay device
  - Webbing runner (wraps around anchor rope)
  - Anchor rope
- Other Equipment:
  - Rope log with daily inspection sheets
  - Rescue prusiks
  - Charged radio and cell phone

A) Set-up of Dynamic Rope at Indoor Tower:

1. After performing the inspection on the rope, attach the paracord to the dynamic rope (using a clove hitch and 3 half hitches) and pull through the anchors.
2. Once both ends are towards the ground unhitch paracord and store away from climbing area.
3. Make sure the ropes are not twisted and orient the inside rope (or the rope closest to the wall) for the climber.
4. On the climbers' end tie a figure 8 on a bight. All knots used must have a barrel knot as a back-up.
5. On the belayers end, attach a belay device and then tie a stopper knot at the end of the rope.

B) Set-up of Anchor System: The purpose of the anchor system is to keep the belayer from being pulled up into the air.

1. To set up the webbing anchor, first take the webbing and make sure the water knot is towards the middle of the runner.
2. girth hitch the webbing on the ground anchor static rope
3. When attaching the webbing to the belayer use a self-locking aluminum carabiner attached to the belay loop of the harness.
4. Belayers may also ask a person to hold the back of their harness to prevent them from being lifted into the air.

C) Crate Stacking can be done in McCleary Lodge as well. The anchor is set up on one of the cross beams. The set up for Crate Stacking is the same as the Indoor Wall setup. Crates are kept in the 'Nest' side room.

Outdoor Climbing Tower (PA #15684)

- Equipment for each climb:
  - Rope
  - Set of three aluminum carabineers (one with a captive eye hook)
  - Belay device
  - Set up material is dependent on what option is chosen (see below)
- Other Equipment:
  - Rope log with daily inspection sheets
  - Rescue prusiks
  - Charged radio and cell phone

A) Set up of dynamic rope at the outdoor tower:

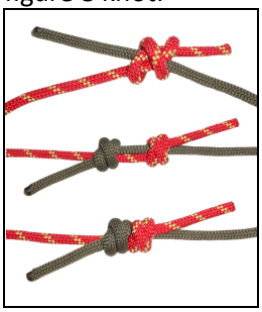
1. After performing all inspections, feed the rope through the SRT ---->

2. Place the SRT over belay bar (above) use the belay bar which is at head level or slightly above the head.
3. Call out “ROPE!” and then feed both ends of rope to the ground.
4. Once both ends of the rope are on the ground, ensure the ropes are not twisted and orient the inside rope (the rope closest to the wall) for the climber.
5. Tie a figure 8 (either on a bite or as a follow through) and a barrel knot on the climber's end of the rope.
6. On the belayers end of the rope, attach an ATC.
7. Tie a stopper knot at the end of the rope. This is called “closing the system.” All knots used must have a barrel knot tied as a back-up.

B) Set-up of the Anchor System: The purpose of the anchor system is to keep the belayer from being pulled up into the air.

Option 1

1. Take a small static rope and wrap it around the post three times. Check to make sure that both ends of the rope are tied together by a double fisherman's knot.
2. Pull bight of rope through the eye bolt.
3. Tie a folded figure 8 knot, adjusting it to belayer's height.
4. Attach a carabineer to the end of figure 8 knot.



Option 2

1. Make figure 8 on the belay brake end of the rope and attach it to the eye bolt with a carabineer and the end of the rope attached with another carabiner back to the belayer's harness.
2. A better design of this option is to do a figure 8 follow through the eye bolt. This allows one less carabineer to be used.

Option 3

1. First take inspected webbing and make sure the water knot is towards the middle of the runner.
2. Girth hitch the webbing on to the bolt of the belay post --->
3. Attach the webbing to the belayer using a carabiner attached to the belay loop of the harness.
4. Belayers may also ask a person to hold the back of their harness to prevent them from being lifted into the air.

Option 4

- Only Trip Leaders who are trained to belay on off-site climbing trips, have the authority to detach from an anchor point and exercise the option of not using it.
    - People with back injuries can choose this option as well but must be given permission by the Course Manager.

Outdoor Wall Cleanup List

- ❑ Ropes dropped from height of tower while holding onto sheer reduction tubes, bring sheer reduction tubes down the stairs in hand.
- ❑ Ropes properly coiled and hung on pegs correctly (never hung with one strand).
- ❑ Anchor tethers are coiled properly (overhand knot) and hung on the correct peg.
- ❑ Carabineers used are collected and put together with other carabineers (blue, yellow, green)
- ❑ ATC's are checked for wear and tear.
- ❑ With the use of a ladder, the tarp is pulled over all the holds and set.
- ❑ Harnesses and Helmets are strung on retired rope and placed in the shed.
- ❑ The door to the tower is locked.
- ❑ The door to the climbing shed is locked.

Did It Rain?

If it rains, at the end of the program take all helmets, harnesses, and rope and place correctly on PVC pipping inside the tower, underneath the platforms.

Special Cleanup

- Fridays (Summer Camp)
- Saturdays, if no climbing on Sunday (School Year Programs)

    - Dunk all helmets in simple green solution.
    - Let helmets soak in simple green solution for 15 minutes. Finish tearing down the wall during this time.
    - leave helmets to dry hanging on PVC Pipe.

To mix simple green solution, fill yellow trash tub with water. While the trash tub is filling up with water, pour simple green for about ten seconds.

Zipline (PA #13829)

Equipment

- Zip trolley
- Zip tether
- Static rope for Zipline
- Pirate, aluminum carabineers (3)
- Anchor static cords (2)
- Petzl Gri Gri device (2)
- Steel carabineers (4)
- Rescue Ladders (2)
- Rescue Bag with equipment (see “Types of Rescues” section)
- Lobster claws
- French Creek fall prevention tethers
- Carabineers (one per fall prevention tether)
- Figure 8 belay device
- Dynamic climbing rope and SRT for belaying up the stairs or
- Alf assisted climbing system
- Full body harness (Zip Leads needs to be wearing)

Set Up

- Climb up the stairs and bring all equipment to the top of the climbing tower

Belay Set Up

1. Wrap one of the anchor static ropes around the piping above the stairs. Wrap this three times and pull evenly so that two loops are now formed.
2. Attach a carabineer to the two loops.
3. Attach a figure 8 aluminum belay device to the carabineer.
    a. If using the ALF assisted climb system, attach this instead of the figure 8 device.
4. Take a dynamic climbing rope, tie a figure 8 on a bight on one end and a barrel knot on the other end.
5. Take a bight of the rope and loop it through the figure 8 metal belay device.
6. Place a carabineer on the end of the tied figure 8 knot and lower down to the end of the stairs for the climber.
    a. If using the ALF assisted climb system, make sure the lower anchor point is stabilized and that the rope can easily pass through both the top and bottom points.

Zip Station Set Up

1. Place lobster claws in correct position with one claw attached to the wire of the zipline cable itself and the other claw girth hitched around a pole of the fall prevention fencing. The carabineer end is temporarily attached to the fall prevention fencing too until time of use. At time of use, this carabineer is attached to the staff member in the full body harness.
2. Place zip trolley on the cable and attach it to the zip tether with a steel carabineer. Attach an aluminum carabineer to the bottom of the zip tether. To make sure the zip tether is being used right, look for the 'USA' flag icon; it should be oriented in the upright position.
3. Place static rope used for ziplining through a Petzl Gri Gri device and make sure it is passing through the right way.
4. Attach static rope used for ziplining to the zip trolley via a steel carabineer. Make sure the rope is tied with a super 8 knot (should have two loops).
5. Place a steel carabineer onto the back of the zip trolley and around the cable itself. This is for backup in case the zip trolley fails to ride the cable.

Rescue Set up

*This must be done to expedite the rescue process if it were to occur

1. Wrap the second anchor static cord around the horizontal base, making another anchor point like the one already made for the stair belay.
2. Attach a steel carabineer to the two loops made with anchor static cord.
3. Tie a figure 8 knot on the end of the rescue static rope that is stacked in the rescue bag. Leave the rope stacked in the bag, make sure the rope has no knots in it besides the figure 8 attached to the carabineer.
4. Attach another Petzl Gri Gri device near figure 8 on the static safety rope.
5. Place rope bag and other rescue equipment on tower platform in reach of the zipline 'sender'.
6. Attach a second zip trolley onto the cable and set it up exactly how the first was. This trolley needs to be behind the first trolley and ladder pulley (see next step). The carabineer needs to be clipped to the fall prevention gate to prevent it from going down the wire.
7. Take both ladders and clip one to the bottom of the other by using a retired carabineer. Attach the top ladder to a pulley and place the pulley on the wire between both zip trolleys.

Zipline Special Policies

Staff
The only staff able to run the zipline are Lead Facilitators who have completed the two-day training course taught by the Adventure Programs Director.

3 Placements

1. The Sender
    a. This is the person checked off to run the zipline and knows how to perform every rescue. They ensure the equipment is correct and can send participants off the platform.
2. Bottom
    a. The person at the bottom is responsible for reminding the participant what to do once they come to a complete stop. This minimizes the risk of the participant unclipping things in the wrong order. The person working the bottom is also responsible for performing the 'fireman' belay once the person descends from the cable.
3. Top
    a. Besides the sender, the person working at the top of the zipline is responsible for belaying participants up the stairs and clipping them into the fall prevention tethers. The person at the top is also responsible for moving people safely up the line until they reach the sender. In case of an emergency rescue the person at the top needs to confidently and calmly lead others down the stairs to where no one is left on top of the climbing tower.

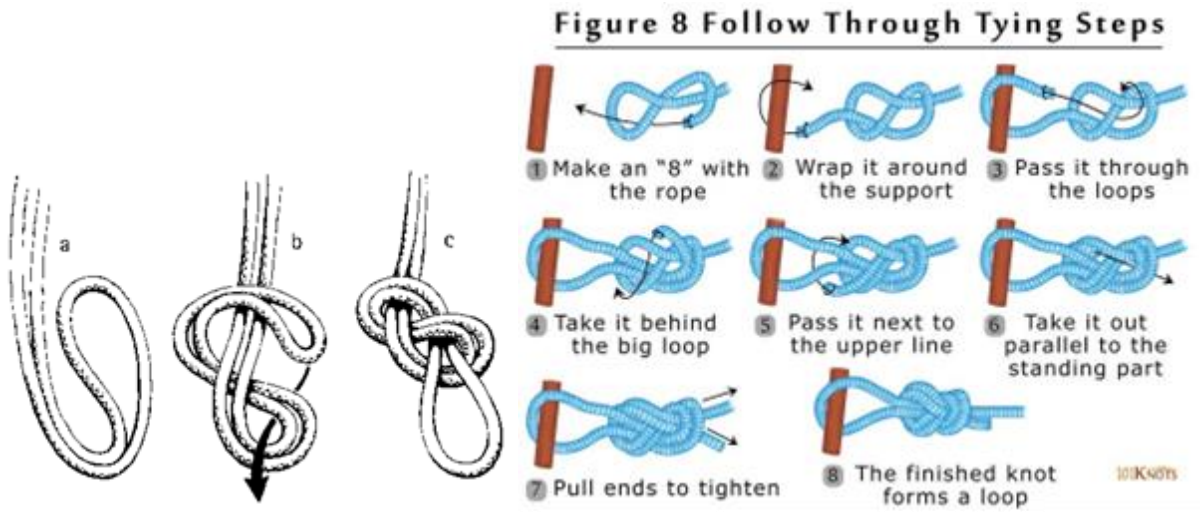
Zip Commands
Instead of the commands being said between the belayer and the climber, during zipping, the communication is between staff; the sender and the person working the bottom.

Sender	***Bottom***
Ready to Zip?	Zip Clear!
Zipping?	Zip Away!

Knots & Hitches

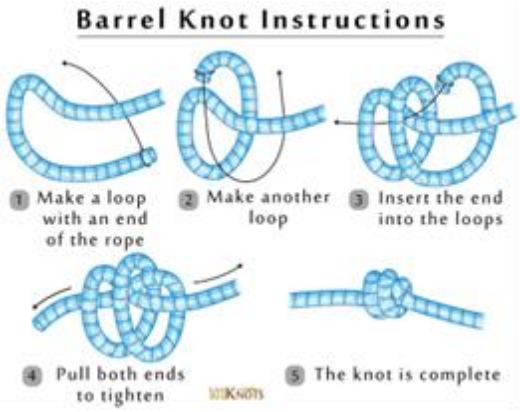
Figure Eight

This knot is used on the climbers' end of the rope and attaches to the climber using a triple locking captive eye aluminum carabiner. This knot may also be tied as a figure 8 on a bite. This knot must be dressed and backed up with a barrel knot.

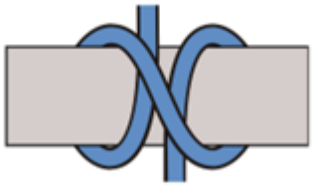


Barrel Knot

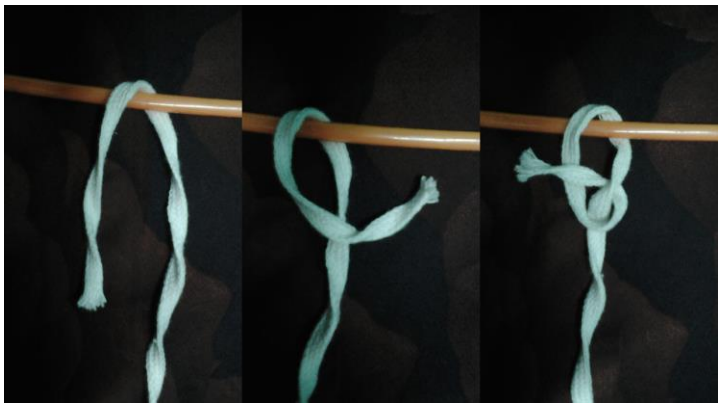
This knot is used as a backup knot for the figure 8 follow through knot. This knot should fit snugly against a dressed figure 8 knot. It is also used as a stopper knot on the belayer end of the rope to "close the system."



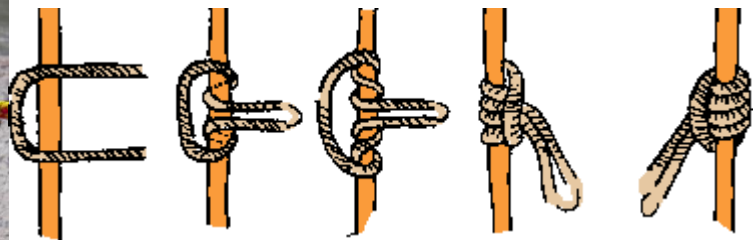
Clove Hitch
This hitch is used to secure the paracord to the climbing rope in order to hang the rope and in order to lower ropes to close the wall. This can also be done for setting up any high rope element.



Half hitches
Used with the clove hitch, these back up the clove hitch and help guide the climbing rope through the rapid links.



Prusik Knot
This knot is used to attach the rescue prusik cord onto the climbing rope in order to perform a belay escape, belay transfer, or rescue someone from height.

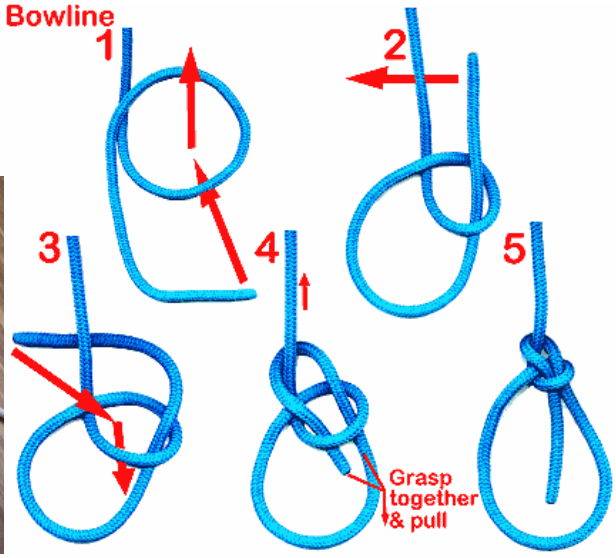


Munter

The Munter is a climbing knot that can be used to make a makeshift belay out of just rope and a carabineer. This method of belaying is done during rappelling and when the speed wall is in use.

Bowline

The bowline knot is used more in adventure trips than on-camp climbing. This knot can be used for the Australian belay or tying an anchor.



Adventure Trips

During off-site trips, the following policies exist when climbing on real rock. They are to be used in addition to the previous policies outlined in the *Climbing Manual* thus far.

Climbing on Real Rock

All climbs must be set up by a Trip Captain or Trip Leader that has been checked off by the Adventure Programs Director. The person setting up the climb site is expected to have the majority of it completed by time the group shows up. The person that sets up the climb site is also expected to constantly monitor the site, making sure that everyone stays safe, acting a course manager.

Belay Protocols

When Belaying, a verbal contract must be made between the participant and staff member belaying. Believe it or not this still holds up in a court of law. Participants may never belay other participants unless arrangements by the group have been made prior, have proper training, and a Trip Coordinator is present. When Belaying, the staff members and participants must use the verbal contract below or some other variation of it. The Participant is always asking a question and the staff member is responding

- Participant: *"On Belay?"*
- Staff: *"Belay is on"*
- Participant: *"Climbing?"*
- Staff: *"Climb away"*

Trip Leaders must use the following technique when belaying

- **Pull-** pull rope through the ATC
- **Brake-** use dominant hand to hold rope against groove of ATC
- **Under-** non-dominant hand on top of ATC now gets placed under the brake hand
- **Slide-** the brake hand then slides up the rope and returns next to the ATC.
- Repeat Process as Climber goes higher!

*Belay devices on adventure trips may look different but function the same way!

Climb Site Management

Trip Leaders should be the staff members belaying. Trip Coordinators can belay and manage the rappel area. Campers on a Level 4 trip and up are allowed to be taught to belay; if they end up belaying, a Trip Leader must back up belay by placing the rope behind their back. Trip Leaders are responsible for going over the standard climbing ground school and in additon mention the following:

- Do not throw rocks
- Stay within sight of staff
- Never wonder off alone. Let a staff member know if you are going to the restroom and must take a buddy.
- Respect other climbing groups
- Keep helmet on the ground when not being used, “Happy Turtle” style. A helmet upside down, where a foot can step into it is known as a “Dead Turtle”

Passing Off Gear

When gear is passed off from one staff member to the next, the person receiving the gear must say “Thank You”. This will hopefully reduce the amount of times gear is dropped.

Climbing with other Groups Present

- Climb sites are never reserved and must be shared with other groups if there are multiple.
- If a group wants to climb a climb that Camp Fitch is already on, they must wait until all participants are done with the climb.
- If a group wants to use a climb that Camp Fitch is already on and it is during a break, the Trip Coordinator will allow the group to use it. The following will happen depending on site:

Top Rope	Take down complete climb
Sport Route	P-Cord rope, group replaces anchors on first climb
Trad Route	P-Cord rope, group replaces anchors on first climb

Caving

Climbing commands are used when in a cave if ropes are used. All policies and procedures should be adapted to the situation. The Adventure Programs Director or Trip Captain checked off to lead the cave will have additional verbal instructions.

If needed, used harnesses from past expeditions will be used. These harnesses need to be checked before the start of the trip.

Zip Lining & High Rope Courses

If zip Lining is being done on camp property, Trip Leaders that are trained to operate the amusement park ride, may do so. When zip lining takes place off camp property, it will be facilitated by an outsourced guided company. That company will have safety procedures that they follow. Participants must wear a helmet and harness while being attached to a tether and zip trolley. Trip Leaders are participants, making sure campers follow safety instructions put together by the hired-out Guides.

The same can be said regarding high rope courses. If the trip is visiting ACE Resort, an outfitter or another camp, those camp policies and procedures must be followed.

It is expected that once Camp Fitch YMCA builds high rope elements that Trip Leaders and Trip Captains play a vital role in the safety and teaching. All high rope elements are under the direct supervision of the Adventure Programs Director and anyone else that has proper ACCT certifications. Trip staff may be assigned to a high rope element when not assigned to a trip during the summer.

P-Cord Droppage

Trip Leaders are responsible for replacing p-cord if it is dropped. This will be done by climbing back up via ladder, lobster claw, or belayed up element.

Rope Inspections

Rope Inspections can be done by climbing lead staff only or other ACCT trained staff.

Sources

- ACCT Standards for Challenge Courses & Canopy / Zip Line Tours—8th Edition—Copyright 2012.
- *High 5 Guide, The- Challenge Course Operating Procedures for the Thinking Practitioner (2nd Edition)*/ High 5 Adventure Learning Center- Copyright 2015. Authors: Jim Grout, Nicki Hall, Ryan McCormick, Chris Ortiz
- REI Website, "How to Belay" https://www.rei.com/learn/expert-advice/belay.html
- *Rock Climbing: The AMGA Single Pitch Manual/* A Falcon Guide- Copyright 2014. Authors: Bob Gaines and Jason D. Martin
- Universal Ropes Course Builders Zip Line Operators Manual.
- Bing™ pictures

Construction Details

Outdoor Climbing Tower

- Steel Frame—Designed and Erected by Boardman Steel Company, Youngstown, OH
- 4x6 Horizontal supports bolted to steel structure by 1/2 in. Carriage Bolts
- 6x6 Horizontal supports bolted to steel structure by 1/2 in. Carriage Bolts
- 2x6 Tongue and Groove Climbing Surface
- 3/8 in. T-Nuts placed approximately 6 to 8 inches apart on Tongue and Groove Surface
- Overhanging Boxes built using 2x6 Frame, surfaced with 2x6 Tongue and Groove
- Overhanging Boxes attached to 4x6 supports using 5/8 in. Machine Bolts

Adventure Trip Locations

- Logstown Quarry, Libson, OH
  - Youngstown Day Programs
- McConnell's Mill State Park, Portersville, PA
  - Weekend Trips and Pennultimate
- Meadow River Gorge and New River Gorge National Park, Oak Hill/ Lansing, WV
  - Mountain Momma
- Pilot Mountain State Park, Pilot Mountain, NC
  - Sweet Carolina
- Red River Gorge, Slade, KY
  - Gorge 2 Gorge
- Rumney Climbing Area, Rumney, NH
  - Northeast Beast
- Worley's Cavern, Bluff City, TN
  - Grayson Highlands/ Sweet Carolina