



Crate Climb

Standard Operating Procedure

and

Risk Management Plans



OVERVIEW

Crate Climbing is an activity that develops balance, co-ordination and agility while allowing participants to challenge themselves at their own pace. Fully harnessed and wearing safety helmets, Crate Climbing lets you climb as high as you dare, conquering your fears and having great fun in the process.

OUTCOMES

Crate Climb is a part of the Adventure at Heights program and focuses on personal challenge, peer support, group encouragement and active participation

PRE-REQUISITES FOR INSTRUCTORS

Level 2 first aid

Indoor Climbing Guide Qualification (or equivalent)

LOCATION

Blue Lagoon Recreation Hall

PRIOR TO COMMENCING

The instructor is responsible for checking, monitoring and maintaining equipment and recording usage and maintenance needs.

The instructor will need to set up the area prior to the participants arriving for their activity.

SET UP OF CLIMBS

Each station requires a top rope setup that includes a rope, 3 carabiners, an ATC and a floor sling.

Firstly the floor sling should be fixed to the floor anchor point by the Delta (triangular) maillon.

The ATC should be attached to the top of the sling with a regular (oval) maillon.

The rope should be passed through the ATC around the maillon and back through the ATC.

(There are images on the side of the ATC to help you work out the way the rope should be threaded through)



Delta Maillon



Regular Maillon



Maillon attaching sling to floor anchor



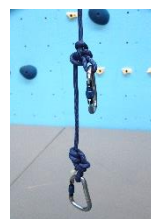
Rope correctly threaded through ATC



Stopper knot (3 wraps)



Belay assembly



Climber's rope showing two attachment points

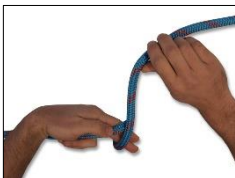


Correctly tied Figure 8 with Yosemite finish



Correctly tied Alpine Butterfly

The belayer's end of the rope should be finished with a stopper knot (see Below)



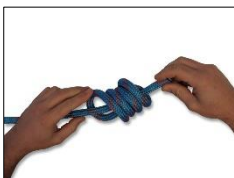
1. Grab hold of rope so you have a long working end. Make a crossing turn around the fingers of the hand that's holding standing end.



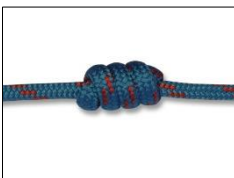
2. Start wrapping the working end around the fingers along and over the standing end.



3. After you've created a few wraps, take the loops you've created off your finger and tuck the working end through the middle



4. Push the working end through the middle of the loops until it comes out of the other side

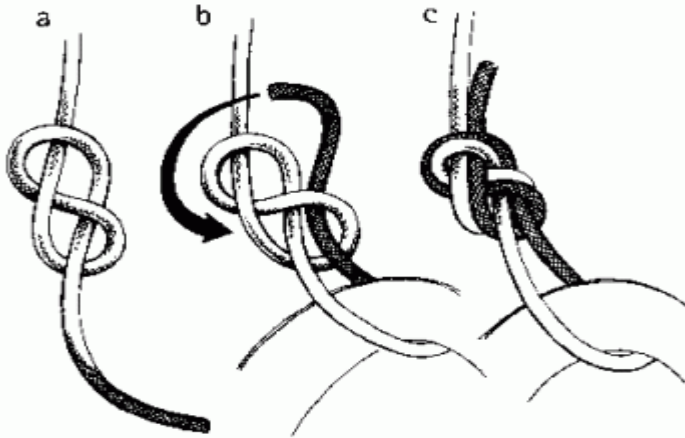


5. Dress the knot by pushing the loops down the standing end while pulling the working end in the other direction.

Two carabiners will need to be attached to the climber's end of the rope using a figure of eight knot with a Yosemite finish and an alpine butterfly.

See below for instructions on tying these knots.

Figure Eight Knot



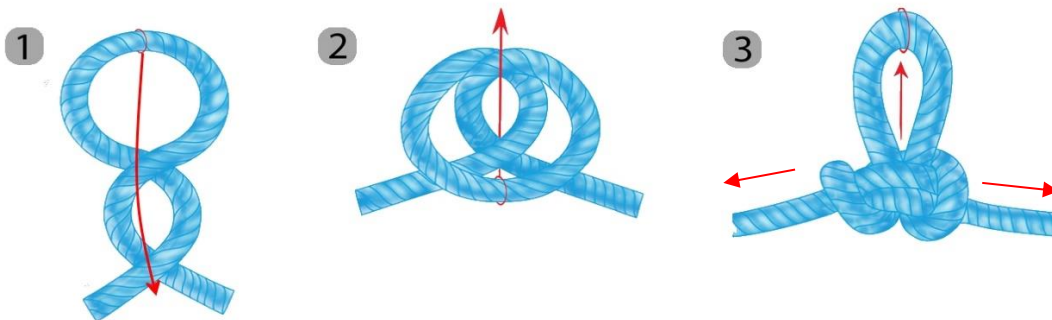
1. Tie a simple overhand knot
2. Loop the working end through your carabiner and proceed to rethread the knot, following the other piece of rope as you go
3. To finish the knot check that you have followed the first knot correctly and that it sits neatly.



4. The Yosemite Finish

Turn your knot over. Take the working end of the rope and thread it back down through the knot again. You may need to work the rope through the knot to adjust the end of the tail as it should not be longer than your attachment loop to avoid it catching on things.

Alpine Butterfly



1. Make a loop like an 8. Fold down the upper loop to where the two ropes first cross each other

2. Tuck the loop under the crossed ropes pull it back up through the first loop

3. pull the loop right through and then pull the two outside ropes to tighten.

At Blue Lagoon we generally leave the belay assembly tied and simply unbolt the maillon from the floor anchor. The sling and rope are then secured against the side wall.

When not in use climbers rope should be clipped onto the floor sling to avoid the climbers end being pulled through to the pulley.

Crates should be stacked out of the way so that they do not become a trip hazard for the participants on the ground. Cones should be laid out to mark the stacking zone and all waiting participants should be outside of this zone. Only one participant at a time may enter the stacking zone to pass the crates up to the climber.

INITIAL INTRODUCTION AND PARTICIPANT BRIEFING

All participants must be briefed on correct techniques of climbing and belaying before participating in the activity.

Climbing can be a high-risk activity if it is not done correctly.

Participants should be paired off and it should be explained that they will take turns belaying and climbing.

All long hair must be tied back and any food or gum disposed of before commencing

Any loose clothing should be removed prior to the activity and all participants must be wearing closed toe shoes preferably with non-marking soles.

All participants should be fitted with a helmet and harness.

HARNESS FITTING

Using one leg at a time step through the waist belt and into the leg strap as you would when putting on a pair of shorts.

Pull the waist belt up until the belay loop is up level with your navel and above your hip bones.

Tighten the waist belt.

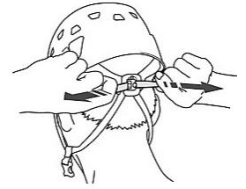
Smooth shorts or pants before tightening the leg straps as bunched clothing can make you uncomfortable. All straps should be done up firmly and if the participant is small tuck the tails of the straps up out of the way to prevent them becoming caught on the crates.



HELMET FITTING

Helmets must be fitted before stepping into the climbing zone. Our helmets are one size and are adjustable to fit a range of people. People with long hair will need to tie it back low on their neck to avoid it interfering with helmet fit.

Helmets should sit low on the forehead and once the chin strap is done up the two tabs at the rear of the helmet can be pulled to adjust it to size.



SPECIFIC ACTIVITY SAFETY AND INSTRUCTIONS

Once the participant is fitted with a helmet, harness and shin guards they may move into position by the crates. The two carabiners on the climber's rope should be clipped onto the loop at the front of the climber's harness facing opposing directions. Carabiners should be screwed shut and squeeze tested to ensure the gate is closed. Have the belayer fit the climber's carabiners and have them verbally say "check" as they squeeze test them. Then have the climber double check them by also squeeze testing them and verbally saying "check". The belayer needs to stand in position with the floor sling in front of them and attach the sling to their harness with the carabiner at the top of the sling. This should also be screwed shut and squeeze tested. The slings are adjustable and should be lengthened or shortened to suit the height of the belayer. The ATC should be level with the belayers navel when the sling is correctly adjusted.

Before the Climber is permitted to climb the Belayer must perform a safety check as follows:

- A – Anchors.** Visually check pulley at top has no tangles or twists and is moving as it should. The sling is fixed to the floor anchor point and the maillon is done up properly.)
- B – Buckles.** Check the climbers harness to ensure it is fitting correctly and the buckles are sitting flat
- C – Carabiners.** Check that all carabiners are screwed shut on both the belayer and on the climber.
- D – Device.** Check the device you are using. Unqualified staff should use a Grigri while qualified instructors can use either an ATC or a Grigri. Ensure the device is threaded correctly and is not twisted when attached to the belayer's harness
- E – Everything Else.** Ensure hair is tied back, helmets are secure, shoes tied up, shin pads are being worn and clothing is not too loose.

Climbing

When ready to begin the climber should approach the stacking zone and stand directly under the pulley. They must then turn to the belayer and ask "permission to begin?" When the belayer is ready, have performed their safety check and they have pulled up the slack they can respond "permission granted" and the climber may begin their turn. Other participants may one at a time enter the stacking zone and hand the climber a new crate. Any participant entering the stacking zone must be wearing a helmet and may only enter when the instructor deems the tower is stable and the climber is balanced. This continues until the climber loses their balance and falls or the tower falls over.

A pole, broom or other long stick may be used to pass crates to the climber once they are high enough to be out of reach.

Once the climber falls they should sit in their harness and allow the belayer to lower them to the ground. Any crates or items still in the climbers hands should be dropped before doing this.

Once the climber reaches the ground the fallen crates should be cleared away prior to the next climber commencing their turn.



Correct hand position and rope orientation.

Belaying

Pull – Brake – Under – Slide (PBUS)

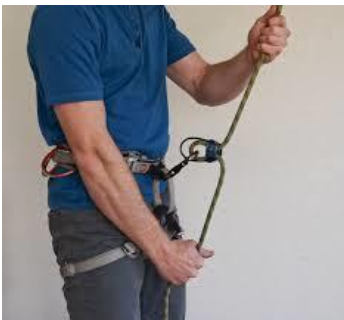
To start take up the slack in the rope with the climber standing at the base of the wall. One hand should be on the climber's rope and the other hand holding the brake rope.



Pull: Your free hand (left) pulls down while the brake hand pulls out

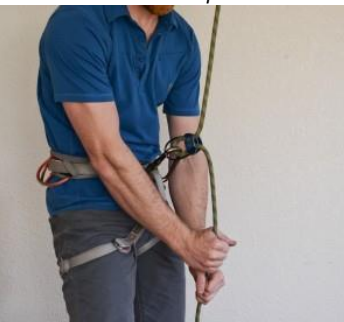
1. Pull - As the climber moves up the wall, you need to pull in the extra rope (slack) to keep the rope taught. Do this by pulling down on the climber's side of the rope with your free hand (left hand) while simultaneously pulling out on the brake side of the rope with your brake hand (right hand).

Tip: *limit the amount of rope you pull to about one foot. If you pull as far as your arms will reach, you'll have a tough time with the next few steps.*



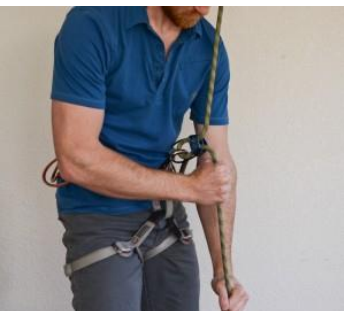
Brake: Bring your brake hand down into the brake position

2. Brake - After pulling in the slack, bring your brake hand (right hand) down into the brake position.



Under: Use your free hand (left hand) to grasp the rope beneath your brake hand.

3. Under - Now that your brake hand (right hand) is in the brake position, have your free hand (left hand) grab the rope underneath your right hand.



Slide: Slide your brake hand up towards your belay device.

4. Slide - Once both hands are firmly grasping the brake side of the rope, slide your brake hand (right hand) up the rope until it is just a couple inches from the ATC. Your brake hand should never come off of the rope, simply loosen its grip on the rope so that you can slide it up.

5. Repeat - Repeat this sequence until your climber is ready to be lowered. If at any point the climber falls, bring the rope into the brake position and hold it there with both hands until the climber is climbing again.



Correct hand positions when lowering a climber.

6. Lowering with an ATC - When your climber is ready to be lowered, grab the brake side of the rope with both hands (palms facing down) and keep the rope in the brake position until the climber is fully weighting the rope. Gradually bring both hands up out of the brake position until the climber is being slowly lowered. If the climber isn't coming down fast enough (too much friction or a lightweight climber) then try shuffling the rope through your hands while lightly grasping it. Both hands should always be holding the rope.

When using a grigri one hand will control the lever and the other should hold the brake rope down by the hip. If the participant descends too quickly the lever may be released to stop the descent. The brake rope must never be let go of.

Tip: as soon as the climber is standing on the ground, pull an arms-length worth of rope through the ATC so that the climber has enough slack to unclip.

No one should walk between a belayer and their climber or enter the stacking zone unless permission has been granted by the instructor as this area is dangerous if the climber or crates fall.

DEBRIEF

Themes: Good foundations, focus

Gather the group and discuss the different situations that arose during the activity. Highlight good team work and support as well as areas the group could work on improving.

What helps to make the crate stack stable. What sort of foundation would be helpful or unhelpful?

Focussing on your goal is important, especially when the tower starts to wobble.

Trust in the rope, instructor and your crate helper

PACK UP

Explain the process of packing up and correctly stowing the equipment.

All climber ropes should be secured to their respective floor sling.

Participants should return their harnesses and helmets to the rack.

Logs should be filled out regarding what ropes were used, which harnesses and helmets were used and for how many sessions.

Floor slings should be removed from the ground anchors and secured against the side walls.

Crates should be stacked and returned to the store room

All equipment and logs should be stowed appropriately and any damaged equipment set aside and recorded for maintenance.

INSTRUCTOR RESPONSIBILITIES

Check all equipment is in good working order

Set up activity

Conduct participant safety briefing

Supervise group participation

Debrief and pack up activity

ASSESSING THE LEVEL OF RISK

Once risks are identified, they are evaluated on a 2 dimensional matrix using a qualitative rating of the likelihood of the event occurring and the scale of the possible consequences. When risks have been identified, they are analysed by combining the consequences and likelihood to produce a level of risk. This form of evaluation provides a good graphical representation of how serious the risk is or where it lies within a group of risks. The risk analysis provides information critical to determining what risks need to be treated and what risks are accepted.

The following matrices have been utilised for the assessment process;

Table 1: Likelihood Matrix

Level	Descriptor	More Detail
A	Almost certain	Will occur. Expect frequent/regular occurrences.
B	Likely	The event will probably occur more than once
C	Possible	The event might occur at some time
D	Unlikely	The event is not expected to occur
E	Rare	The event may occur only in highly exceptional circumstances

Table 2: Consequence Matrix – relate to the *most probable* outcome.

Eg. A fall from a windsurfer is most likely to result in **no or minimal injury and therefore be rated as 1-2 ie. insignificant/minor.**

Level	Descriptor	More Detail	Injuries	Potential Operational Impact
1	Insignificant	Low Impact, no injuries/damage, low profile.	None	Student still able to participate. Little impact <30min
2	Minor	Minor Injuries/damage sustained. Low impact, possible public embarrassment.	First Aid Treatment	Student able to participate after treatment. Low impact <30min
3	Moderate	Significant injuries/damage sustained. Public embarrassment possible.	Medical Assistance Required	Student unable to continue with activity. Instructor impact whilst treatment given.
4	Major	Extensive injuries/damage sustained. Loss of instructional capabilities, public embarrassment, 3 rd party action, high news impact	Extensive Injuries. Medical Treatment	Loss of instructor/s whilst treatment/medical aid given. Extended rehabilitation of injury/damage repair.
5	Catastrophic	Public embarrassment, 3 rd party action, high news and media impact.	Deaths	Loss of instructor/s, closure of centre whilst investigation conducted.

Table 3: Level of Risk – consideration of both likelihood and consequence.

		Consequence				
		1	2	3	4	5
		Insignificant	Minor	Moderate	Major	Catastrophic
Likelihood	A Almost Certain	High	High	Extreme	Extreme	Extreme
	B Likely	Medium	High	High	Extreme	Extreme
	C Possible	Low	Medium	High	Extreme	Extreme
	D Unlikely	Low	Low	Medium	High	Extreme
	E Rare	Low	Low	Low	High	High

Important Note: Following the identification and implementation of risk management control measures it is assumed that all Risk Descriptions will be reconsidered as having a “low risk” factor. If the re-assessed level of risk remains at “Extreme” or “High” following implementation of control measures serious consideration should be given to not proceeding with this activity. Risk vs Reward for this specific activity should be carefully considered!!

Table 4. Risk Priority – an indication of how quickly/frequently an identified risk needs to be addressed and/or monitored.

Rating	Description
Low	Low priority.
Medium	Medium priority.
High	High Priority. Requires immediate action to redress risk. Additionally, risk should be closely monitored to ensure management strategies to reduce risk are effective.

Important note: The assessment and identification of Risk Priority should not be solely based upon the likelihood or frequency of an event occurring, but more a consideration of a number of factors, including: *frequency, likelihood, consequences (particularly the possibility of serious personal injury or death) and risk of litigation or legal exposure!* A student competing in a bicycle tour event on a controlled public road is very unlikely to be involved in a collision with a motor vehicle, however the consequences may well be most serious, with the possibility of a serious injury and possible legal exposure. Therefore a Risk Priority rating of **High** should be applied, with appropriate risk management.

Risk Register/Risk Management

Activity: **CRATE CLIMB**



Activity Description: Crate Climb is an activity where participants while being belayed, stack and climb a single tower of milk crates. It encourages peer support, personal challenge and fosters encouragement in a group setting.

General Safety consideration: Loose clothing must be removed or tucked in and long hair tied back. All participants within the drop zone must be wearing a helmet. Climbers are encouraged to wear shin guards and must be wearing a correctly fitted harness and helmet. Crates are to be stacked in the centre of the hall to prevent them becoming a trip hazard.

Risk description. What and how can it happen	Likelihood (Refer Table 1)	Consequence (Refer Table 2)	Level of Risk (Refer Table 3)	Management. Including existing Control measures to eliminate or reduce the risk. Note: Once the risk management measures listed below are followed all risks described in column 2 will be reconsidered as having a "Low Level of Risk".	Priority (Refer Table 4)
Danger from falling objects to belayer and participants on the ground	C	3	HIGH	<ul style="list-style-type: none"> • Helmets to be worn by all belayers and helpers • Pockets must be empty and loose items removed before climbing • All participants who are not climbing or belaying are to remain clear of the stacking zone and are only to enter when permission is granted by the instructor • Verbal warning given when crates fall 	HIGH
Injury due to faulty equipment	C	4	EXTREME	<ul style="list-style-type: none"> • All equipment to be checked prior to the start of the session • Regular monitoring of Equipment condition. • Rope usage logged. 	LOW
Injury due to ill-fitting equipment	C	3	HIGH	<ul style="list-style-type: none"> • All equipment to be checked prior to climbing • All equipment to be checked by supervisor before climbing is permitted. 	MEDIUM
Friction / rope burn whilst belaying	C	3	HIGH	<ul style="list-style-type: none"> • Appropriate briefing on correct technique 	LOW
Hair / other items caught in abseil device	C	3	HIGH	<ul style="list-style-type: none"> • Long hair must be tied back • Loose items may not be carried when climbing/belaying • Clothing must not be too loosely fitted as to cause entanglement • No jewellery permitted to be worn 	LOW
Injury whilst climbing	C	3	HIGH	<ul style="list-style-type: none"> • Appropriate techniques demonstrated 	MEDIUM
Injury due to falling or being dropped	C	5	EXTREME	<ul style="list-style-type: none"> • Appropriate briefing and supervision of belayer and climber. 	LOW
Injury from contact with the crates	C	3	HIGH	<ul style="list-style-type: none"> • Climbers to wear helmets, shin guards and appropriate clothing when climbing 	MEDIUM

Injury caused by incorrect climbing / belaying	C	3	HIGH	<ul style="list-style-type: none">• Appropriate briefing regarding the correct climbing / belaying technique.• Supervision of group to identify incorrect technique while participating• Only trained belayers to belay crate climbs	LOW
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