



Lecture #1

Introduction to Rock climbing

Belay and Rappel

YouTube link of recording:

<https://youtu.be/s187G5zmrng>



Where are we in the Course?

Lectures: Introduce content

#1: Introduction to Rock (January 4th) - Jan Abendroth

#2: Alpine rock climbing (March 5nd)

#3: Snow travel and Crevasse rescue (April 3rd)

#4: Glacier travel, trip planning and the climbing party (May 2nd)

Field trips: Hands-on introduction to content

Skills nights: Practice sessions



Field trips in January

#1: Top rope belay:

2 weekday nights, PC

Tuesday, 1/9 or Thursday, 1/11

both events are identical, only sign up for one
optional if you know how to use a belay device

#2: Anchors and rappel

2 weekday nights, PC

Tuesday, 1/23 or Friday, 1/26

both events are identical, only sign up for one
optional Field trip

Please sign up.
Please come prepared.
Please be on time.

BADGES
you will
earn:



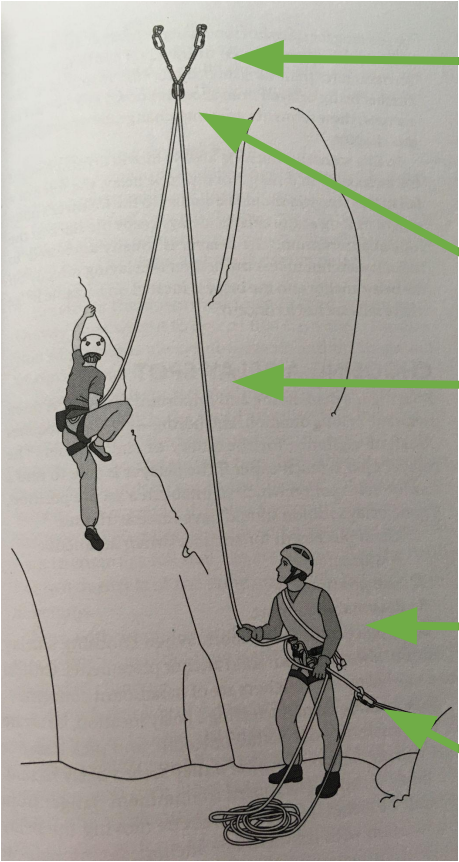
Seattle Basic Alpine Climbing Class 2022 - Curriculum

**Seattle Basic Alpine Climbing Course.
Curriculum Outline for Field Trips 1-7.**

Field trip 1 - Top-rope Belay/Lower, Belay



Top rope belay



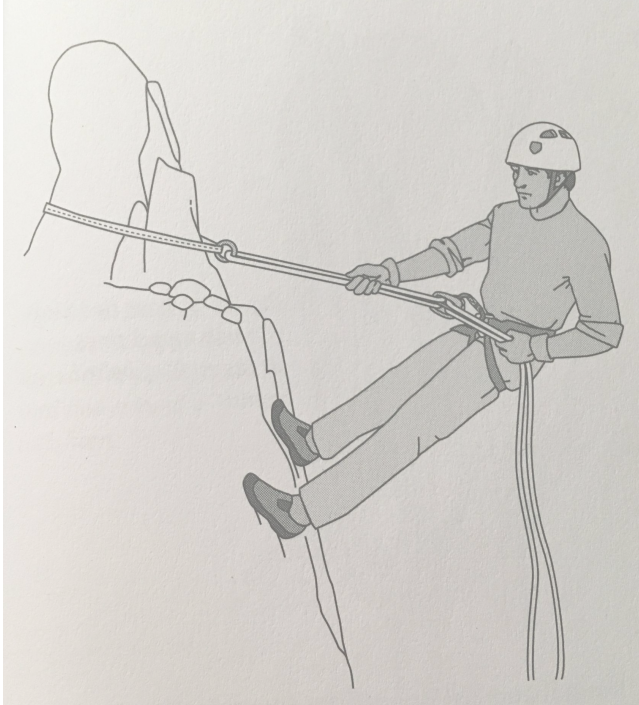
Anchor

Gear strength

Belay

Knots, hitches, bends

Rappel



Knots, hitches and bends

Knots: tied with the rope only, creates an end point. Should not move.
Field trip 1, 2: overhand knot, overhand on a bight, rewoven figure-8,
rest of course: slip knot / mule knot, butterfly knot, bowline (single, double)

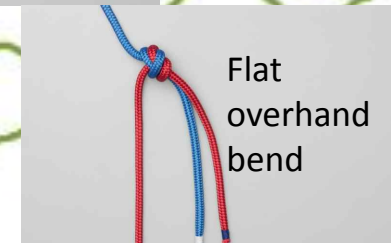
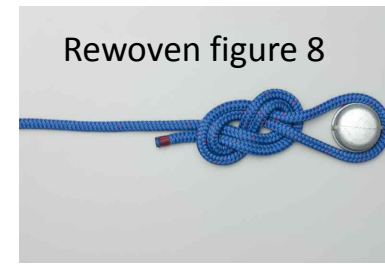
Hitches: connect a rope to another object, such as a carabiner
Field trip 1, 2: clove hitch, girth hitch, munter hitch
rest of course: prusik hitch, klemheist

Bends: tie two ropes together
rest of course: double Fisherman's bend, water knot

More helpful than lecture:

Animated knots: <https://www.animatedknots.com/climbing-knots>

REI knots video: <https://youtu.be/V1yq9XoAbCQ>



Top rope belay



<https://youtu.be/CFIz4cBFVro>

Tie-in, partner check, harness

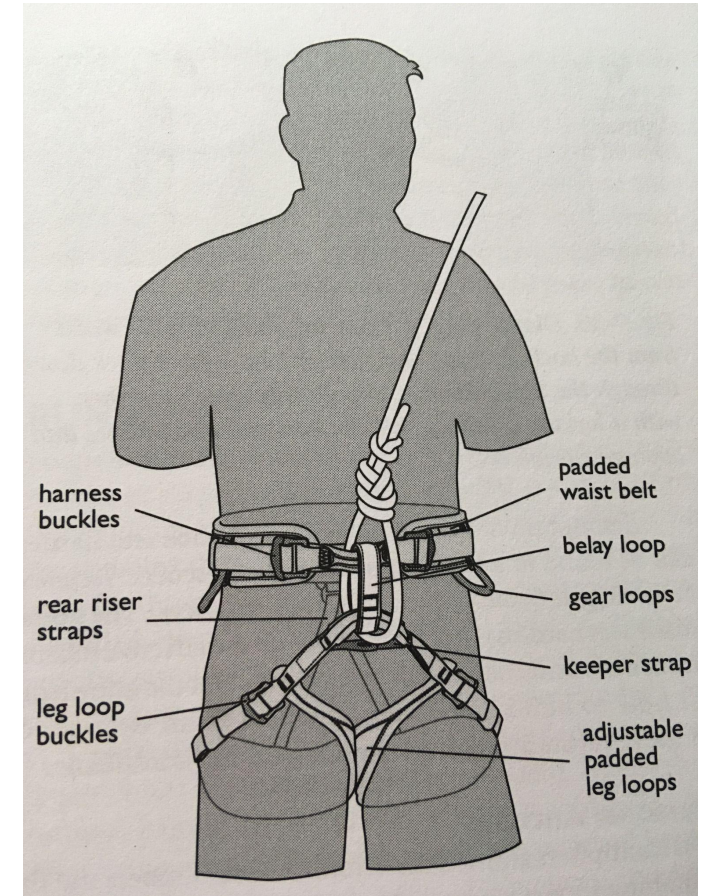
Partner check: done before each climb.

- **Harness:** Snug fit (hands barely fit between harness and yourself) and belt double-backed.
Leg loops tightened (if adjustable)
- **Tie-in:** Climber tied in with rewoven figure-8, well dressed and with 4-6" tail
Multi pitch: belayer tied in
Single pitch: system closed with stopper knot
- **Belay:** Belay device properly set up
Carabiners locked

Harness: *

Load bearing: belay loop, waist belt loop

Not load bearing: leg loop, gear loop



*** always check manufacturer's specifications**



Climbing commands

Clear and simple command sequences:

<u>Climber</u>	<u>Belayer</u>
On belay?	Belay on!
Climbing!	Climb on!
Tension!	Got you!
Falling!!	Got you!!
Lower me!	Lowering!
Rappel!	--

Use names in gym or busy crags to avoid confusion.



PBUS (Pull, Brake, Under, Slide)



Pull slack out of the system.
Use guide and brake hand.
Note: System is not in brake position



Brake hand below device.
Device now in brake position.



Move guide hand
below/**under** brake hand
and hold rope.



Slide brake hand towards belay device.
Keep brake hand around the rope.
Keep a few inches distance to belay device.

NEVER take the brake hand off the rope!!



Lowering a climber



Communicate with climber.
Both hands on the rope.



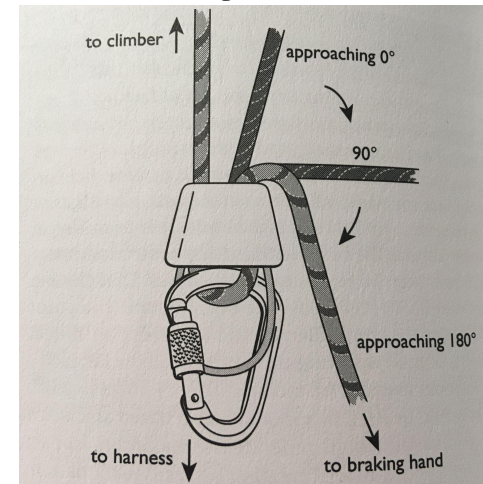
Watch and listen to climber.
Adjust lowering speed as needed.

NEVER take the brake hand off the rope!!



Understanding the tubular belay device

- Belay device, tube style device, or ATC (air traffic control)
- Friction created by bends in the rope.
- Brake hand keeps rope in brake position.
- Never take brake hand off rope!!



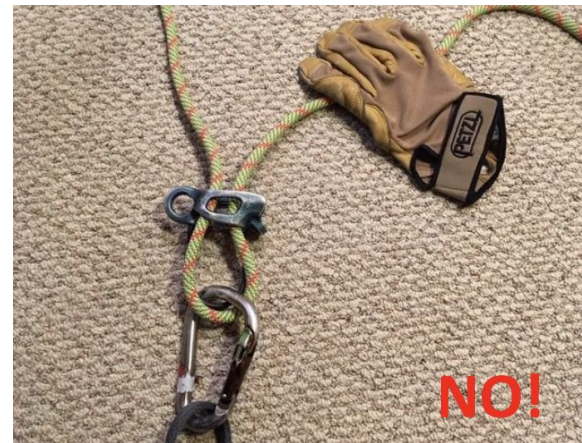
BD
ATC



Petzl
Reverso



Belay loop

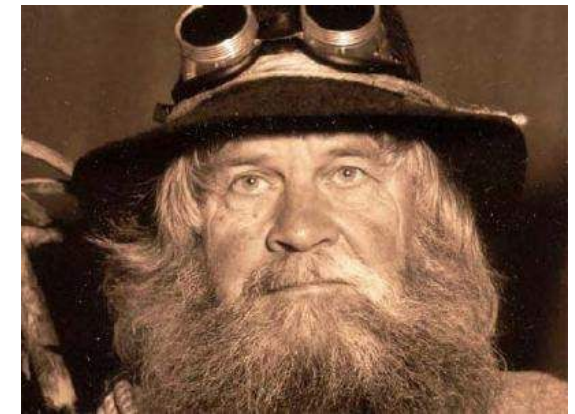


NO!



Understanding the Munter hitch

- Alternative to tubular belay device
- HMS: Halbmastwurfsicherung (Mastwurf = clove hitch)
- Friction created by bends in the rope and rope rubbing against rope.
- Advantage: rope runs well, fast belay
- Orientation of hand has less influence on brake strength.
- Never take brake hand off rope!!

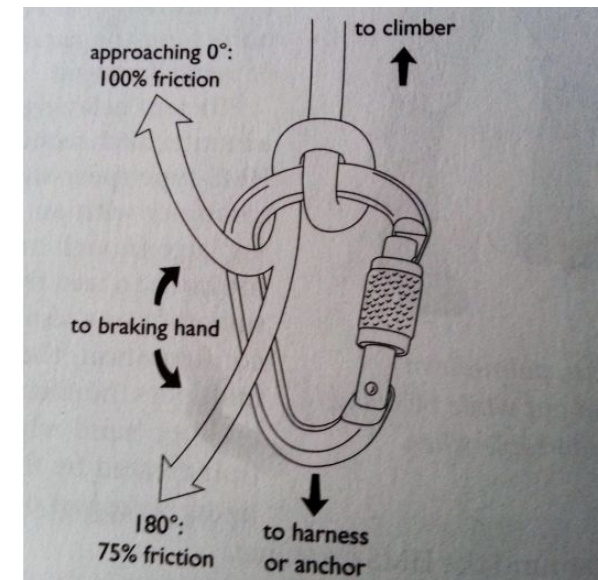


Werner Munter
Swiss mountain guide and
avalanche safety pioneer

Most friction



Less friction, still 75%



Assisted belay devices

- Tubular belay device and Munter belay require full belayer attention.
- Assisted braking devices are useful/required in gym or crag.
- Not all of them are useful for general alpine trips.
- Similar equipment throughout a class allows *everyone* to understand their climbing partner's set up.
- Know your equipment well if you use for instance a Mega Jul
- Generally not recommended for the Basic course.
- Note: even assisted brake devices require belayer's attention for example: https://www.youtube.com/watch?v=jKe72j_mBLU

Compare: non-assisted belay devices

Recommended for the course



BD
ATC



Petzl
Reverso



Mammut
Smart



BD
Pilot



CT
ClickUp+



Petzl
GriGri



Edelrid
Mega Jul



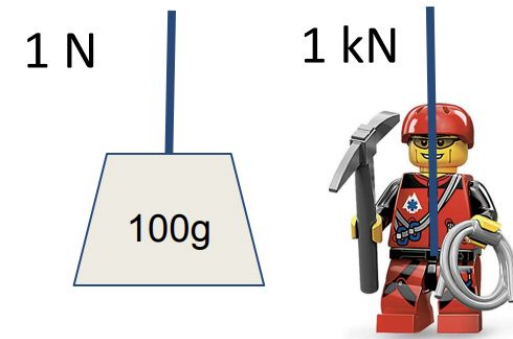
Edelrid
Jul2



Gear strength



- strength measured in kN = kilo Newton
- climber with gear: 102kg = 225 lb = 1 kN (static)
- Force that gear can take?
 - carabiner 8-25 kN (watch direction of force, cross loading)
 - rope: > 11 kN, rope stretch reduces force
- 6-8 kN cause significant injury to climber
- Store gear dry and clean
 - wear and tear can impact strength of gear



RISKS COMMON TO LOCKING AND NON-LOCKING CARBINERS

Examples	Examples	Examples	Examples	Examples

RISKS OF DAMAGING THE LOCKING SLEEVE

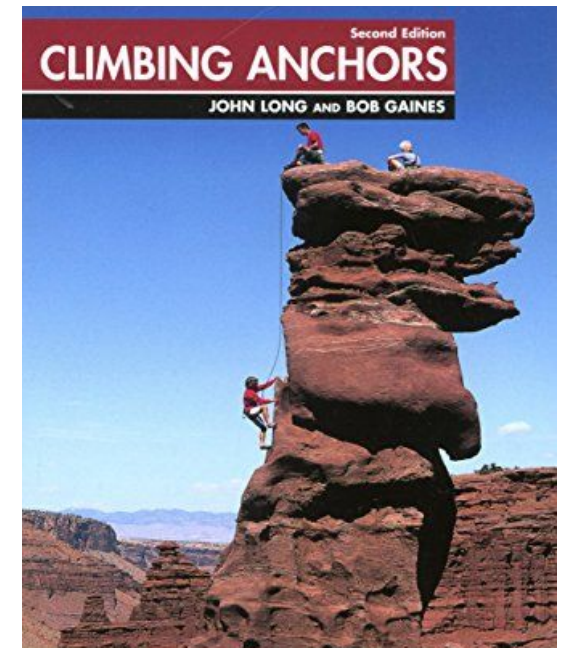
Examples	Examples

<https://www.petzl.com/US/en/Sport/Examples-of-dangerous-carabiner-loading->



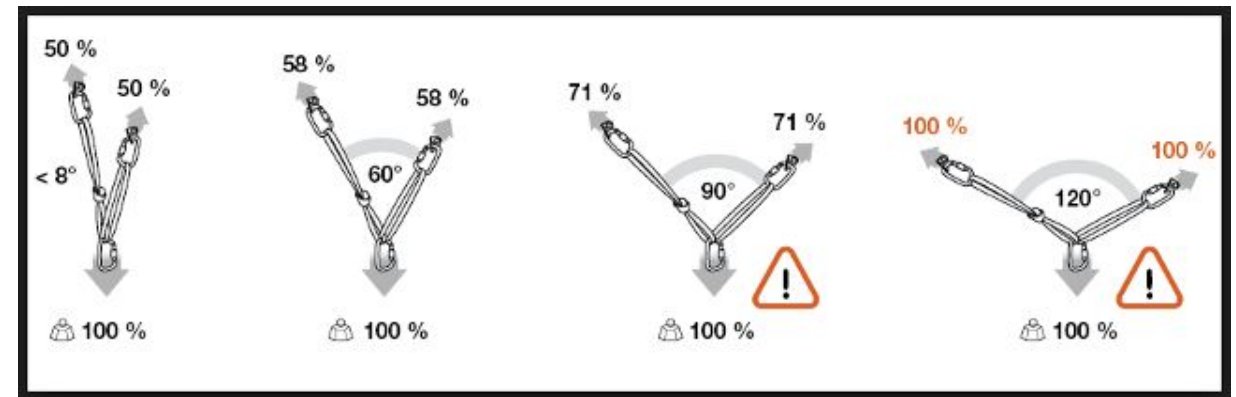
Anchors - purpose

- Single pitch: secure belayer, especially with weight difference or exposure
- Multi pitch: secure climbing party
- Students **not** expected to set up anchors.
However, students should know concepts and identify good or bad anchors.



EARNEST concept:

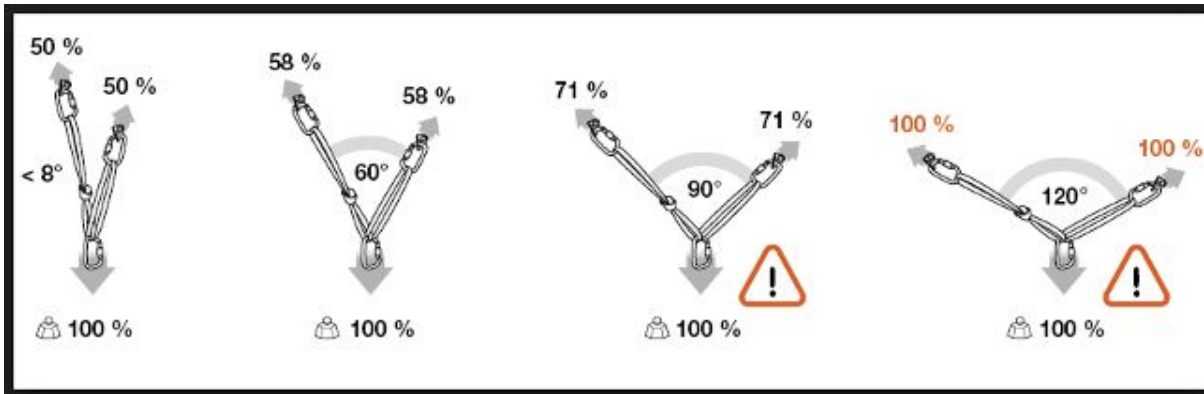
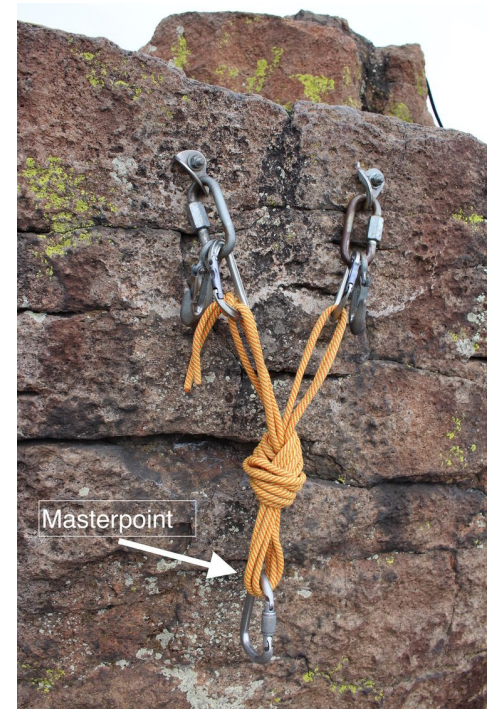
Equalized	similar force on all anchor points
Angle	acute angle between strands
Redundant	at least two attachments to the rock
No Extension	... if one part fails
Strong	strong enough for purpose
Timely	can be set up efficiently



Anchors - EARNEST

EARNEST concept:

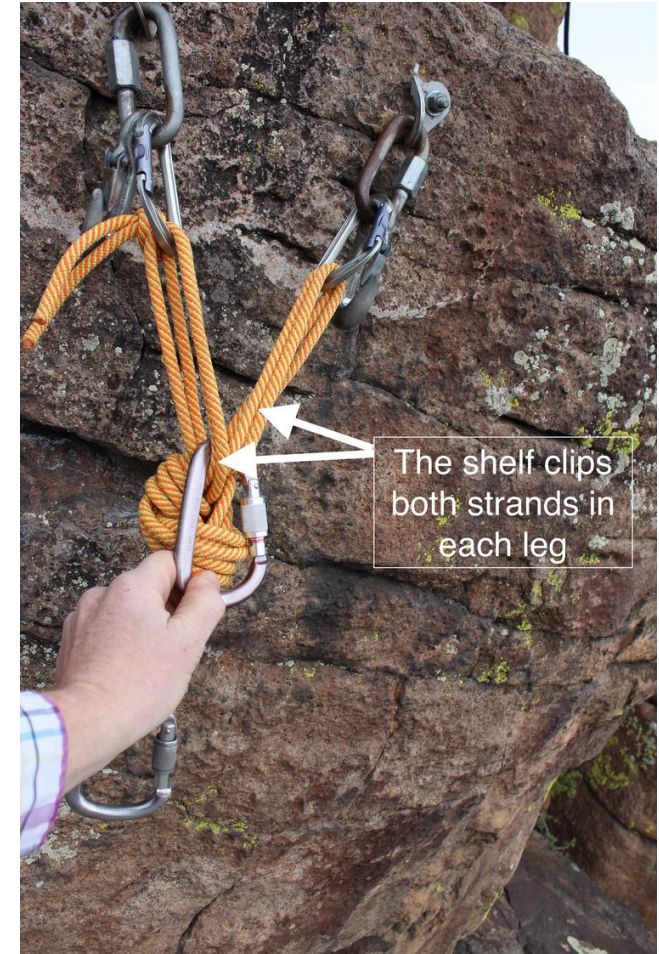
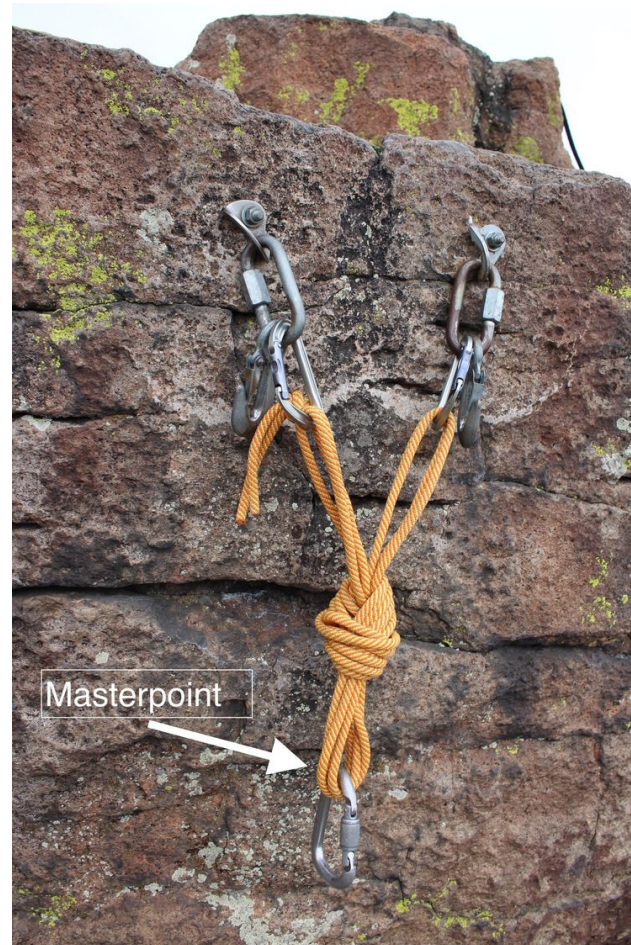
- Equalized similar force on all anchor points
- Angle acute angle between strands
- Redundant at least two attachments to the rock
- No Extension ... if one part fails
- Strong strong enough for purpose
- Timely can be set up efficiently



Climbing anchors - Master point / shelf

EARNEST:

Equalized
Angle
Redundant
No Extension
Strong
Timely



Climbing anchors - Types I

EARNEST:
Equalized
Angle
Redundant
No Extension
Strong
Timely



2 point cordelette anchor, bolts



3 point cordelette anchor, trad

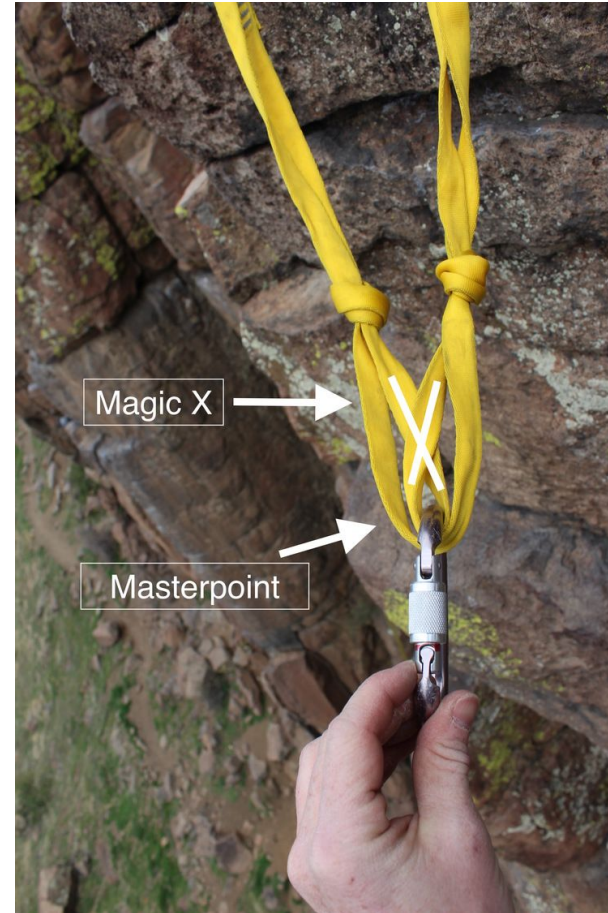


Climbing anchors - Types II

EARNEST:
Equalized
Angle
Redundant
No Extension
Strong
Timely



Quad anchor, self-equalizing, bolts



Sliding X, self equalizing, bolts

Climbing anchors - Types III

EARNEST:
Equalized
Angle
Redundant
No Extension
Strong
Timely

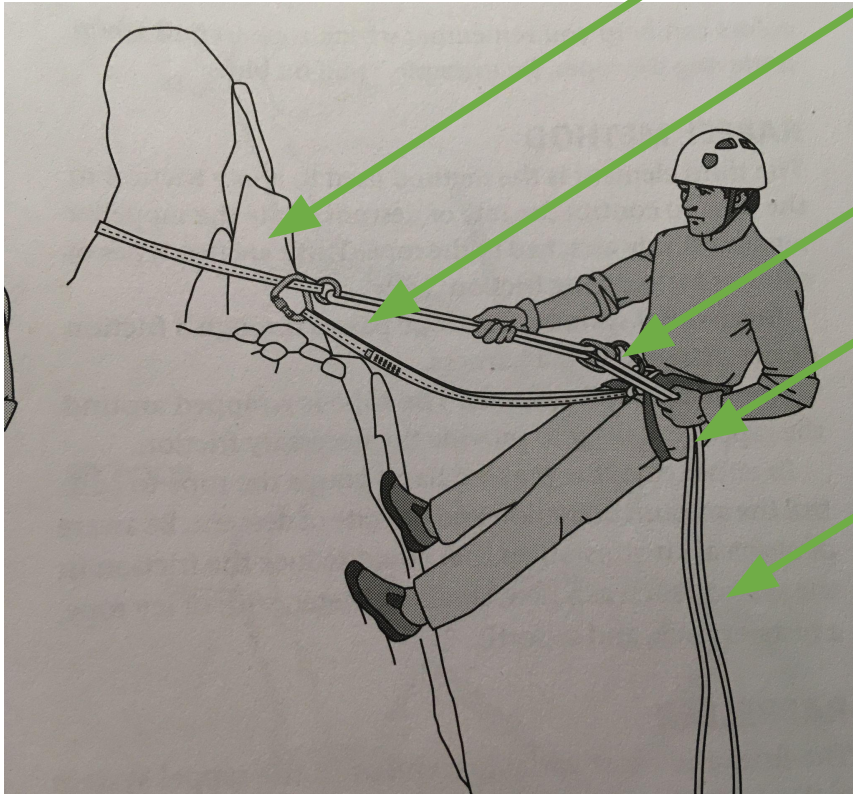


Tree anchor,
frequent on Basic climbs,
tree must be sturdy enough and well rooted,
watch: shelf is different!



simple sport climbing anchor,
rarely used in alpine settings

Rappelling



Anchor

Personal anchor / leash

Belay device,
extension

Autoblock,
3rd hand

Rope,
especially its ends

**Rappelling is a
very dangerous
part of climbing!
The climber 100% relies on the system!**



Forbidden peak, West ridge

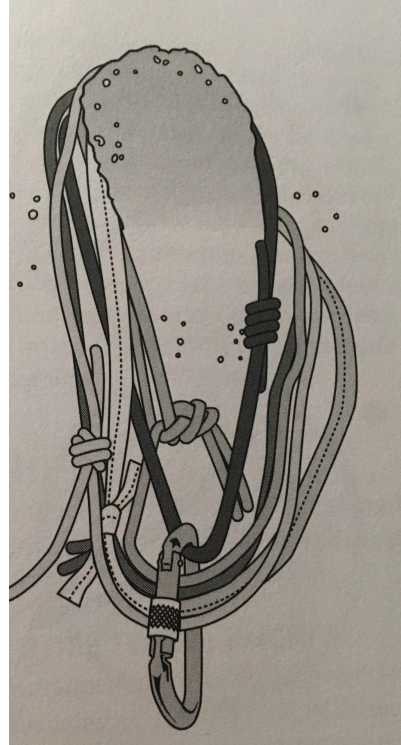


Rappelling



<https://youtu.be/7U6tdEevJgs>

Rappel - Anchor and rope



Rock (horn) or tree with tat,
frequently found on popular routes,
check anchor and tat



Middle of the rope at the anchor,
some ropes have middle markers,
measure if not.



Both ends with stopper knots on the ground or
at the next belay station (multipitch).
You do **not** want to rap off of the end!



Rappel - Backup



6mm cord (hero loop),
3x around both ropes,
clipped into locking carabiner in belay loop

Number of wraps depends on

- diameter of rope,
- age of rope (slick, fluffy),
- diameter of the hero loop, material,
- weight of the climber



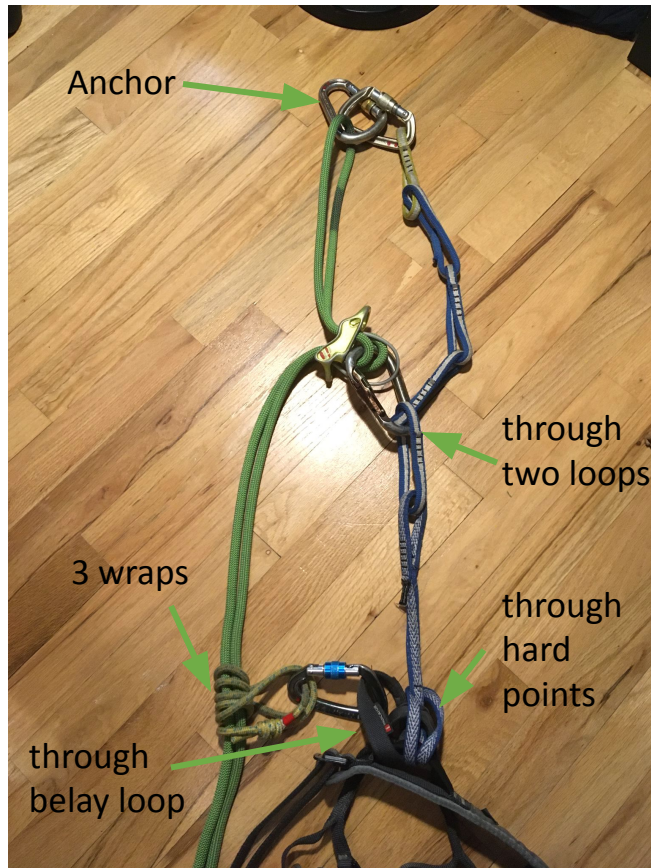
6mm perlon,
sufficient for Course,
cheap



Hollow block
great friction



Rappel - Leash and Extension



Anchor and extension with **PAS**



Anchor and extension with **nylon** sling with **overhand** on a **bight** knot



Anchor and extension with **nylon** sling with **overhand** knot



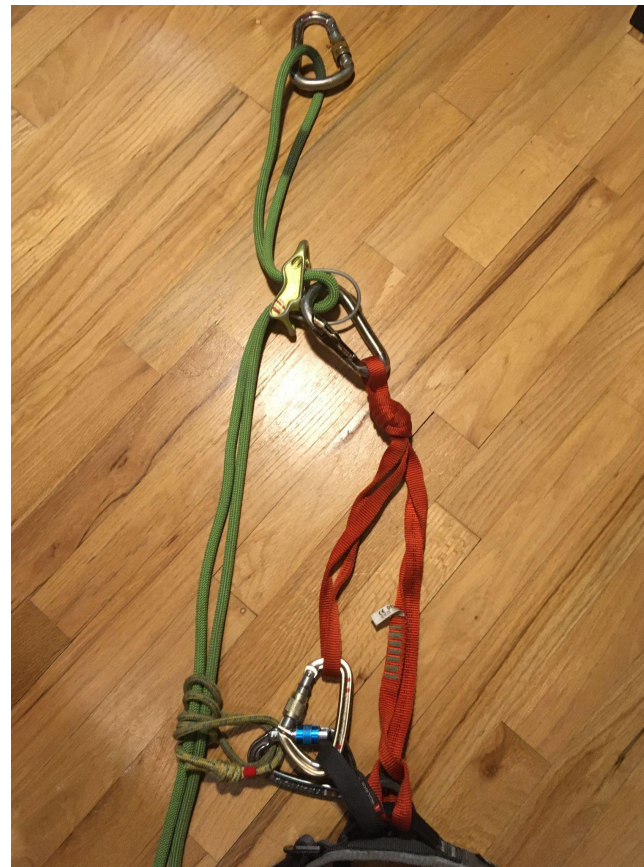
NO Dyneema sling!
ONLY sewn sling, NO knotted sling!
NO daisychain!



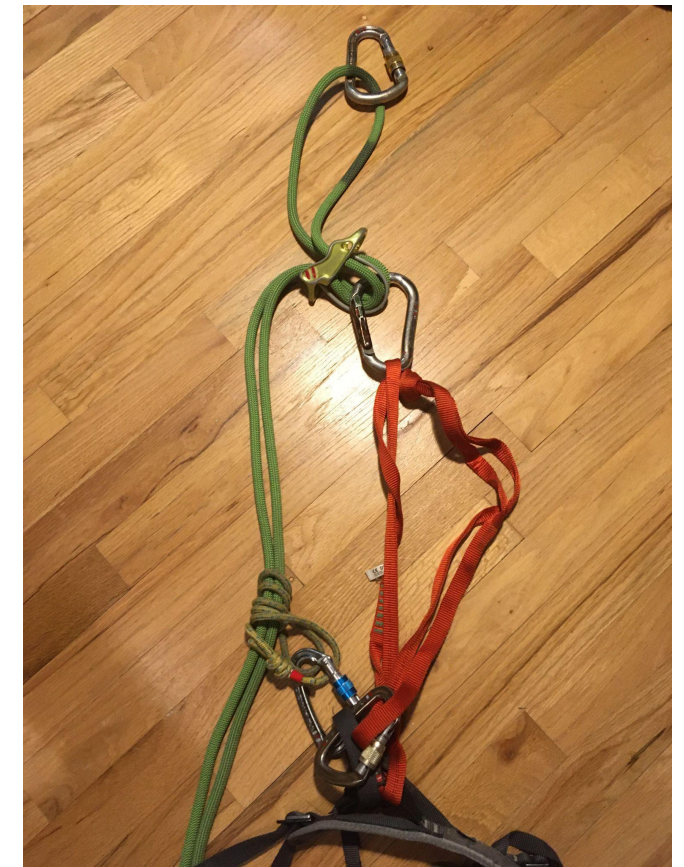
Rappel - Leash and Extension



Rappel extension with **PAS**



Rappel extension with **nylon sling** with **overhand on a bight knot**



Rappel extension with **nylon sling** with **overhand knot**



NO Dyneema sling!
ONLY sewn sling, NO knotted sling!
NO daisychain!

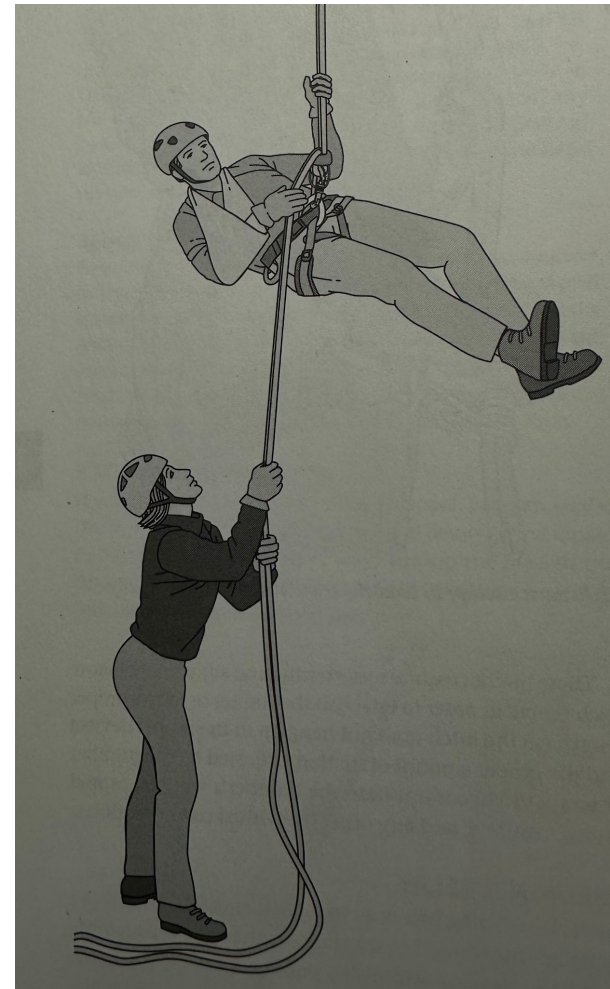
Rappel - Check and rappel

Before rappelling:

- Check anchor
- Check belay device set up:
both ropes through device and carabiner,
carabiner locked
- Check backup: does it hold the rope
- Check rope ends: on the ground and stopper knots
- Don't hesitate to ask for Fireman's belay
- "Rappelling" with outdoor voice

During rappel:

- Keep a good stance, feet shoulder width apart
- Smooth and steady rappel, no bouncing
- Take your time
- Hands always on the rope!



Fireman's belay
Also helpful for new climbers.



What's next: Skills nights

Skills nights are organized by SIGs.
They can happen every Monday evening until May.

Please sign up on Course page for each event
as for any other Mountaineers event;
insurance, utilization, volunteer hours etc.
More events will be added.

Seattle Basic Alpine Climbing Skills night (optional)			
Seattle Program Center	Mon, Jan 8, 2024 Registration closes Jan 6	30 participants 24 instructors	Jan Abendroth
Seattle Program Center	Mon, Jan 15, 2024 Registration closes Jan 15	48 participants 33 instructors	Peter Clitherow
Seattle Program Center	Mon, Jan 22, 2024 Registration closes Jan 22	47 participants 28 instructors	Jan Abendroth
Seattle Program Center	Mon, Jan 29, 2024 Registration closes Jan 29	50 participants 26 instructors	Jan Abendroth

More events will be listed on an ongoing basis.

REGISTRATION STATUS

JAN ABENDROTH
Role: Leader

Status: Registered

[Manage registration](#)

SEATTLE BASIC ALPINE CLIMBING LECTURE #1 - INTRO TO ROCK
You may optionally add any of the following activities:

- Mountaineers Seattle Program Center – Fri, Jan 6, 2023 – 0 spots

SEATTLE BASIC ALPINE FIELD TRIP #1 - BELAY/LOWER
You may optionally add any of the following activities:

- Mountaineers Seattle Program Center – Fri, Jan 13, 2023 – 0 spots

Or join the waitlist for an activity that is currently full:

- Mountaineers Seattle Program Center – Mon, Jan 9, 2023 – 0 on waitlist

SEATTLE BASIC ALPINE CLIMBING SKILLS NIGHT
You may optionally add any of the following activities:

- Mountaineers Seattle Program Center – Mon, Jan 16, 2023 – 7 spots
- Mountaineers Seattle Program Center – Mon, Jan 23, 2023 – 3 spots
- Mountaineers Seattle Program Center – Mon, Jan 30, 2023 – 5 spots
- Mountaineers Seattle Program Center – Mon, Feb 6, 2023 – 11 spots
- Mountaineers Seattle Program Center – Mon, Feb 13, 2023 – 11 spots
- Mountaineers Seattle Program Center – Mon, Feb 20, 2023 – 11 spots
- Mountaineers Seattle Program Center – Mon, Feb 27, 2023 – 9 spots



Further information

Gearing up for the **Basic Alpine Climbing Course**, linked in the

<https://docs.google.com/document/d/1qyyknO4c85ehLluBMLzsjAyGviiRacagW3N32RiNbY/edit?usp=sharing>

Interesting and fun videos

Belay video, REI: <https://youtu.be/CFIz4cBFVro>
Rappel video, REI: <https://youtu.be/7U6tdEevJgs>
Extended rappel, Mountaineers <https://vimeo.com/113362076>
Climbing knots, REI: <https://youtu.be/V1yq9XoAbCQ>
Library of articles and videos: <https://www.rei.com/learn/c/mountaineering>

Worst belay, Petzl: <https://youtu.be/V9hsWjA3SmU>
World's best belayer, Petzl <https://youtu.be/NJHVgkchcbw>

Rappel extensions, AMGA <https://youtu.be/jmCNNsjDrVA>
How not 2 rappel: https://youtu.be/ft3_O-9tirM



Welcome to the Basic Alpine Climbing Course



Logan peak, Banded glacier

We are looking forward to go climbing with you!

Gear nights

Ascent outdoors, Ballard:

Wednesday, January 25th

Feathered friends, Yale Ave

sometime in March

