

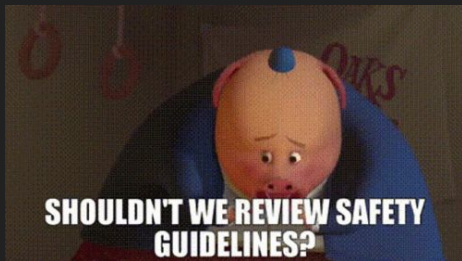


Cave

OSHA®

Safety Intensifies

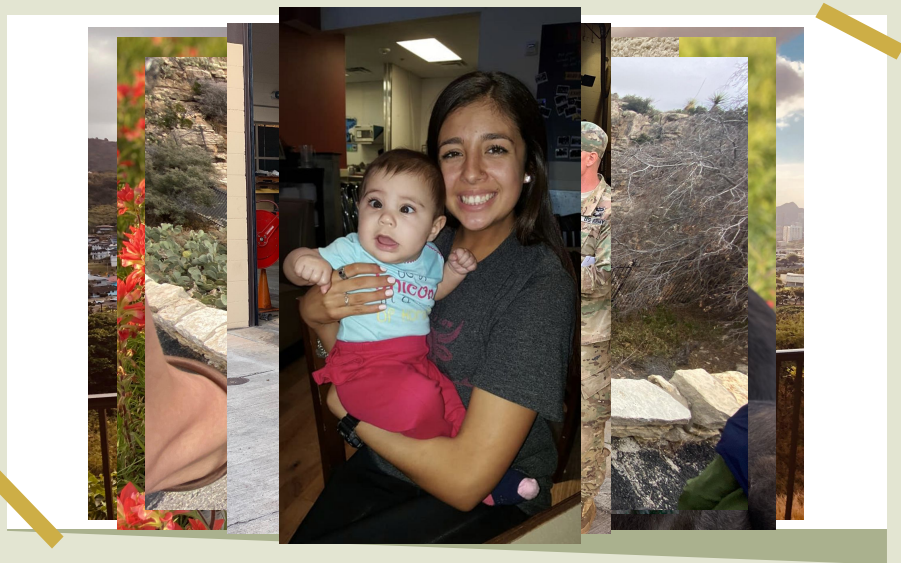
Safety





President

President Aggie Speleological Society x Aggie
Grotto



Hometown: Jenks, Oklahoma
4 siblings
FFA - Reporter/Secretary & State FFA Degree
U.S. Army Veteran - Chaplain's Assistant
2 Dogs - Okie (5) & Fern (2)
Collect rocks & National Geographic Novels
Water Avoidant



Nicknames
G.I. Jenna
Gemma
Beans
Chain-Chomp



TCMA Board of Director - Preserves , Acquisitions, &
Membership Committee

NSS, TCMA, & TSA Member

Cave Formation Repair Project - Apprentice

Bat Conservation International - Volunteer

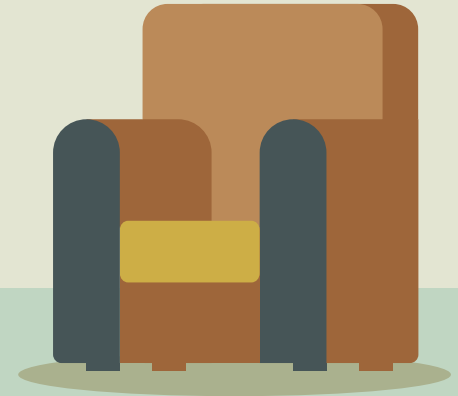
NCRC Level I Course Certified

PESH Expedition

Carlsbad Caverns National Park Night Skies Intern




Plan Trips
Networking with the Larger Caving Community
Talking with Land Owners
Educational Presentations
Vertical Trainer
Ensuring Sustainability Through Generations
Cave Police







What is it? How do we practice it?





Cave Conservation is the
protection and
restoration of caves to
prevent or minimize the
impacts of humans.





**“THAT CAVES HAVE UNIQUE SCIENTIFIC,
RECREATIONAL, AND SCENIC VALUES; THAT
THESE VALUES ARE ENDANGERED BY BOTH
CARELESSNESS AND INTENTIONAL VANDALISM;
THAT THESE VALUES, ONCE GONE, CANNOT BE
RECOVERED; AND THAT THE RESPONSIBILITY
FOR PROTECTING CAVES MUST BE ASSUMED BY
THOSE WHO STUDY AND ENJOY THEM.”**

—the National Speleological Society

Table of contents

01.

PPE



Personal Protective
Equipment

02.

No touchy



Gloves are what the hot
girls wear.

03.

Crumbs



Cave Snacks!

04.

Rock Fall



It's raining men, but
also other more
dangerous things.

05.

Rescues



What happens when
things go wrong?

06.

NSS Motto



Broad Overview.



Personal Protective Equipment



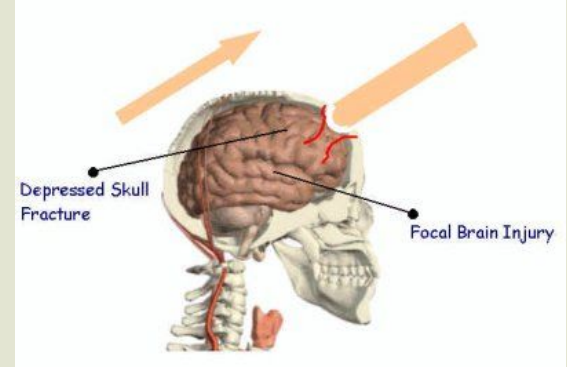
Gloves

Garden Gloves work best!



Synthetic Materials

Reduce the amount of lint
and protect you!



Helmet

If you've been helmet
checked you understand
this rule!



No Touching



Hand Oils

Our hands and bodies produce oil that is deposited onto surfaces we touch!

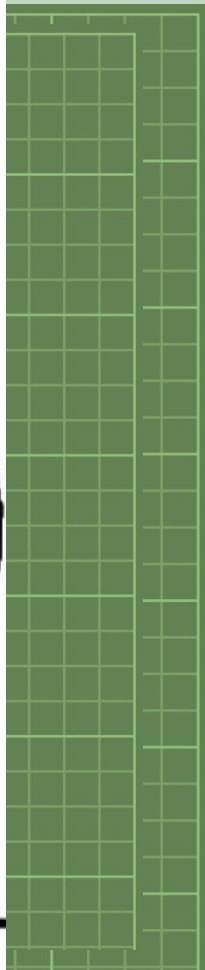
Discoloration

Human Oil Deposits can discolor the white nature of formations.

Dead Formations

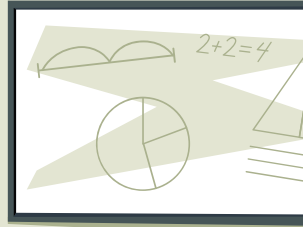
Oil acts as a calcite blocker and doesn't allow the deposition of calcite. Therefore rendering the speleothem dead and unable to grow.







Bad Cave Chart



Bad Snack

Very Crumby

Very Liquidy

Very Unstable

Chips
Crackers
Nature Valley Bars

Pickles
Go Gurt
Yogurt

Aluminum Cans
Sloppy Joes
The Government





**Take Nothing But
Pictures.
Leave Nothing But
Footprints.
Kill Nothing But Time.**

**—National Speleological
Society**

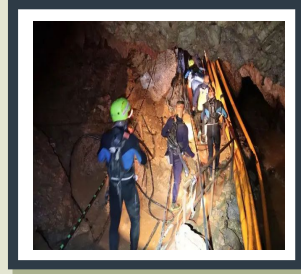


Cave Rescues



Financially Costly

Rescues cost a lot of money!



Time Intensive

Every hour into a cave constitutes 2 hours out of the cave at minimum!



Uncomfortable

You can speak a bit about this person here





Why we aren't 'spelunkers'



Safety Discussions must be Fearless

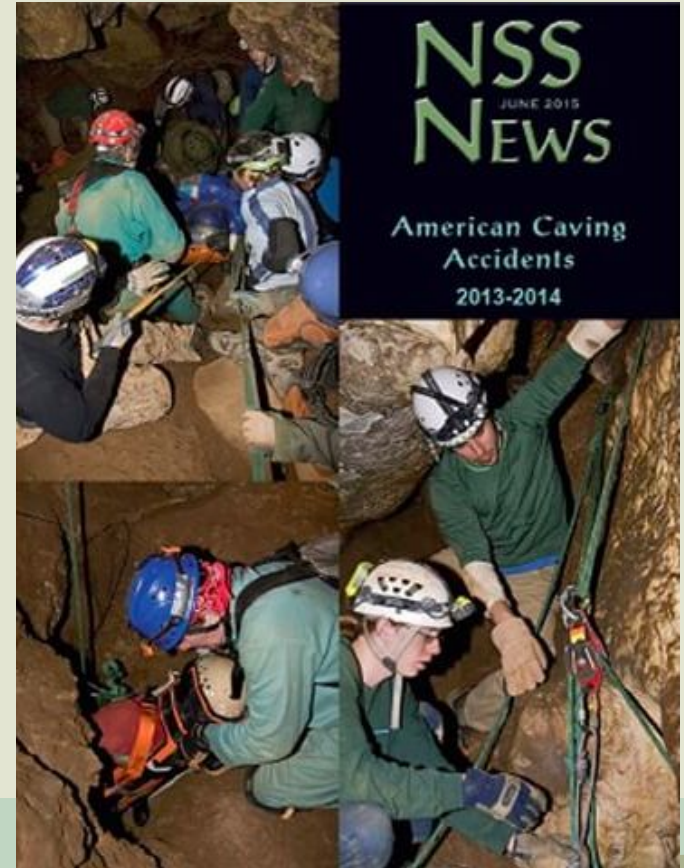
- *American Caving Accidents* rocks!
- Accident reports improve caving safety
- ACA meeting in March!
- There is no intent to call anyone out!
- We are all improving our technique constantly

Be fearless. Report.

Your honesty could save a life!

Caver names and cave names can be omitted

You get approval before publication



The Average Reaction To Caves

Dark!

Cramped!

DANGER!

Cold!

Wet!

Danger is Reduced by Knowledge!

Caves have legitimate danger.

So...

What is *actually* dangerous about caving?

Failing Equipment 1:20?

Collapsing Passages 1:28?

C.H.U.D.s 1:01?

Safety Realities

44 caving incidents reported per year, 1980-2016 (1595 total)

19 Caving Traumatic/Other Injuries per Year (avg)

3 Caving Deaths per Year (avg)

Physical Challenge



Exhaustion

- Carry appropriate loads - no
- Eat and drink; Beware medi
- Stop soon enough 2013-Jan-06



Hypothermia 2013-Feb-11

- Usually a secondary effect, eg from problems on rope
- Bring water, calories, mylar blanket
- Avoid rope problems in waterfalls



Illness - Think twice about that sniffle, or ulcer

TIPS



Know Your Limits

Mental/Skill Challenge



Rockfall

- Stay out of the fall zone
- Don't shout "Rope Fall"
- Always shout ROCK
- Secure your pack
- Treat new areas with respect and clean clean clean
- Rigging weakens rock

2016-May-10

TIPS

- ✓ Know Your Limits
- ✓ **Avoid the Fall Zone**

Situational Awareness TIPS

Bad Air 2000-Sep-07



- Ask a local
- Know the signs! Hear
- Use your lighter or a
- Example of “floating

- ✓ Know Your Limits
- ✓ Avoid the Fall Zone
- ✓ **Check the Air**



Discovery



Naica Mine, Chihuahua, Mexico

Discovery

Unexplored areas (including digs) are notably

- Rock fall
 - Shifting rock
 - False floors
- Clean entrances
Test footing and
Same.

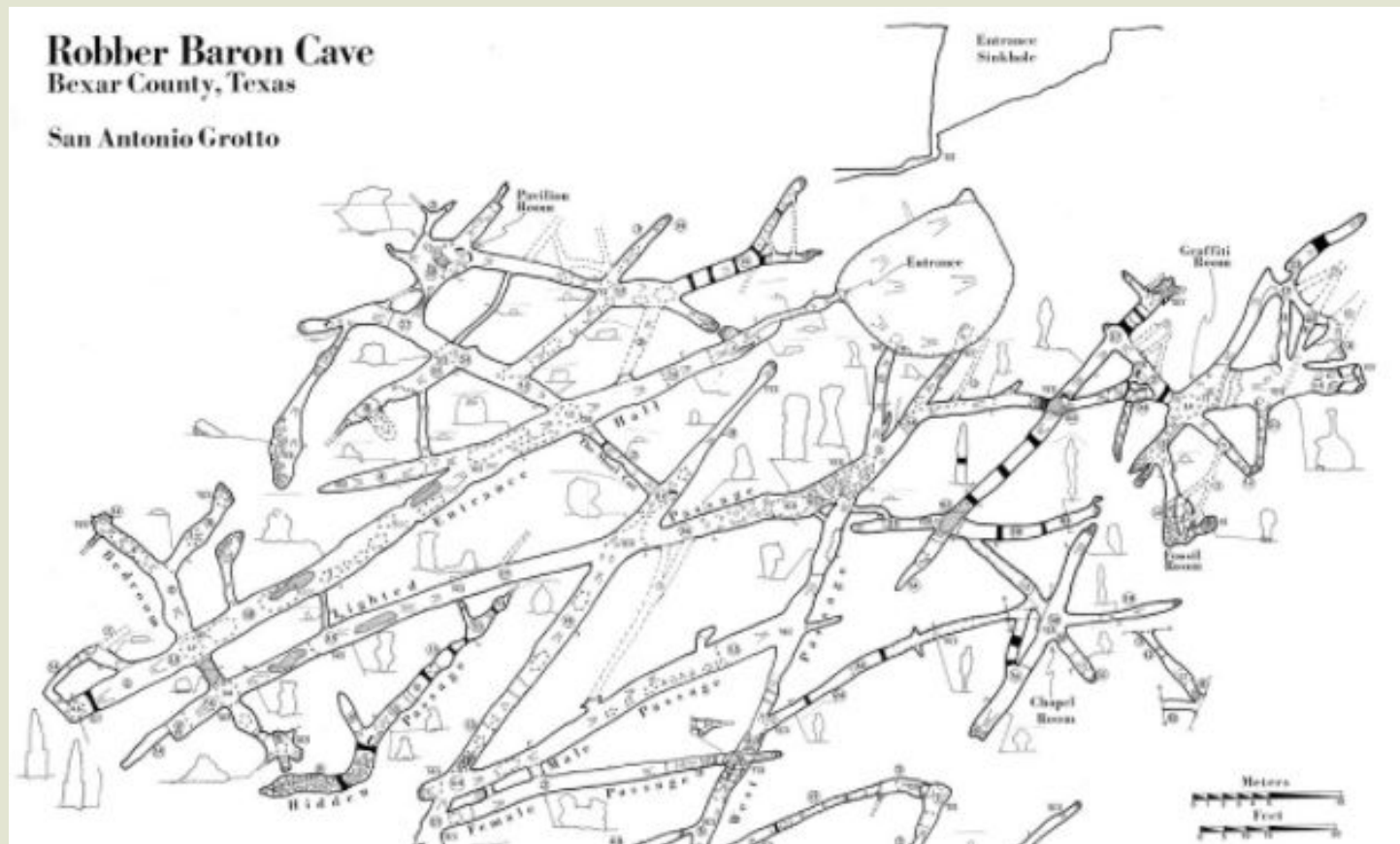
Deeper expeditions mean deeper preparation

- Food and water for an extra 24 hours
- Medical kits for common problems
- Equipment selection & redundancy

TIPS

- ✓ Know Your Limits
- ✓ Avoid the Fall Zone
- ✓ Check the Air
- ✓ **Caution During Discovery**

Lost and Stranded



Don't get Lost! Or Stranded!

1 in 8 is Lost 2010-Apr-21

- Bring three lights
- Bring a map
- Practice looking behind
- Beware scooping too much
- Flag passages if unsure

1 in 8 is Stranded 2015-Jul-05

- Consider how you will get back to safety
- Beware one-way climbs
- Flooding can strand you

TIPS

- ✓ Know Your Limits
- ✓ Avoid the Fall Zone
- ✓ Check the Air
- ✓ Caution During Discovery
- ✓ **Know Your Way**

Community Building - Your Caving Partners




Partners and Newbs

40% of Incidents involve

- Check your inexperienced partners
 - Clothing suitability, especially
 - They ate and drank recently
 - No loose hair, long beards
 - No jewelry or non-cave wear
 - Three non-crap lights
 - Pause in the first room
 - Never leave them alone, and watch their eyes
 - Vert gear they understand
 - Instruct them on hazards
- Beware overconfidence
- Test everyone's vertical capability before entering

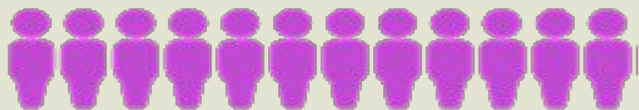
TIPS

- ✓ Know Your Limits
- ✓ Avoid the Fall Zone
- ✓ Check the Air
- ✓ Caution During Discovery
- ✓ Know Your Way
-  **Check Novice Readiness**

Falling



Falling Is The Greatest Danger!



- Poorly rigged rack or bobbin, or losing control 2013-Jun-08
- Beware cross-loaded gates - [Crossload](#) 0:22
- Mis-steps over edges - [Slip](#) 0:00
- Improper, changed or damaged rigging 2015-Nov-27
- Shifting terrain, even on well-worn routes 2015-Jun-19
- Slips when climbing seemingly short distances 2015-May-16
- Slips when walking esp. in wet caves and ice caves

Falling Precautions

- Test your descender before
- Kneel and belly-crawl near
- Build habits with practice -
- Examine your equipment b
- Move carefully and *think* ab
- Three points of contact means “what if one point slips?”
- Use proper footwear and quality equipment
- Rig for the weakest member of the team

TIPS

- ✓ Know Your Limits
- ✓ Avoid the Fall Zone
- ✓ Check the Air
- ✓ Caution During Discovery
- ✓ Know Your Way
- ✓ Check Novice Readiness
- ✓ **Build Good Habits**

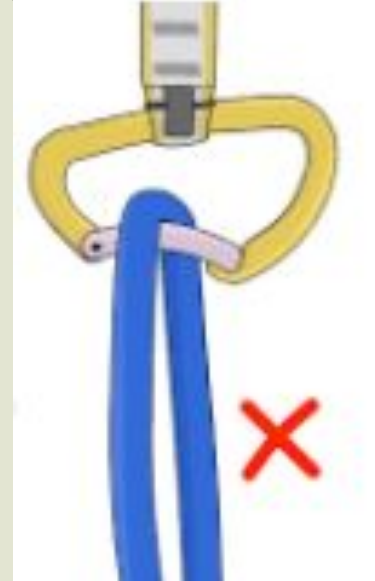
Notes on Ascending Etiquette



Cueva Cheve, Oaxaca, Mexico (c) Kasia Biernacka

On ascent “Rope Free” is a promise of safety to the next caver!

- I’m no longer connected to or touching the rope
- I’m out of the fall zone (top and bottom)
- I have checked the rigging - knots good, biners loaded properly, biners locked
- Rope pads are correct
- Rope is off any sharp edges or snags



Know Your Own Limits / when things go bad

- Amy's Lung
 - Tried something new, but in a new situation
- Mandy's Arm
 - "going for a move that needed to be thought out more. I had done the exact step 30 minutes before"
- Galen's Hair
 - What about "no knife, no rope grab, tight rebelay"

Knot Notes

- The Bowline with Yosemite finish - avoid capsizing it
- The wrong-seeming Butterfly
- Fusion knot beats bunny ears for safety
- Harness safety - dynamic cow, more locking biners
- Handy harness gear for safety
- Hair in a rack - knife, rope grab, and a tight rebelay
- Rope can escape your Croll on J-hangs

Death



Castle Cave, Budapest Hungary

Causes of Fatality



Fall

Drowning

Stuck / Cardiac / B

Drowning

- Check for rain before going 2016-Dec-18
- Know routes to high ground inside the c

Medical (Cardiac)

- Party members should disclose known po

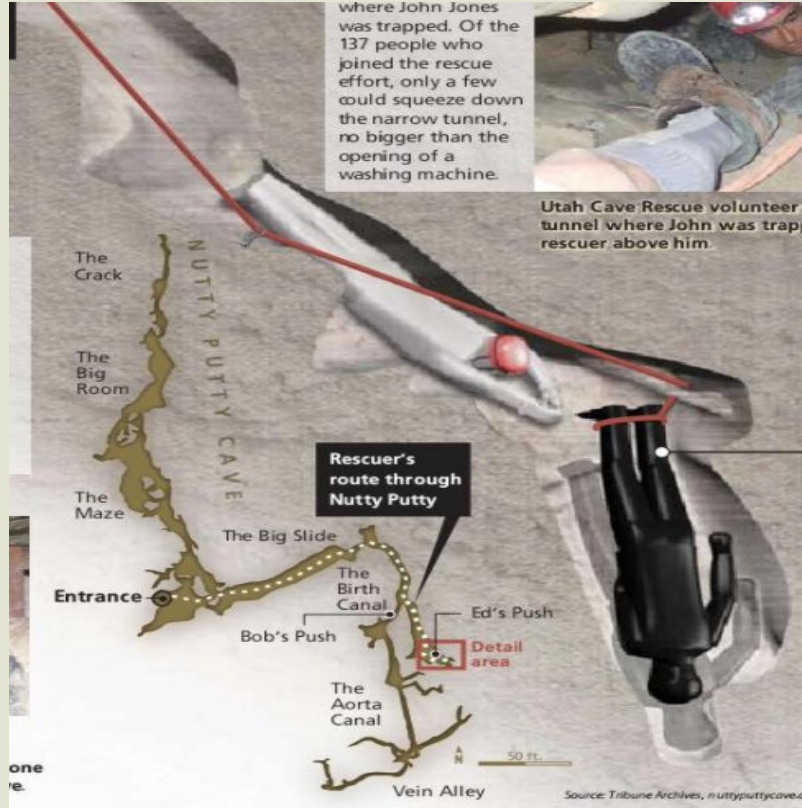
Stuck

- Assess risk and choose party order carefully (Stuck 1:44)
- Usually problems in turns, not straight squeezes
- Beware head-down position - it limits your timeline

TIPS

- ✓ Know Your Limits
- ✓ Avoid the Fall Zone
- ✓ Check the Air
- ✓ Caution During Discovery
- ✓ Know Your Way
- ✓ Check Novice Readiness
- ✓ Build Good Habits
- ✓ Check for Rain
- ✓ **Beware bendy squeezes**

Nutty Putty Attempted Rescue



Tell someone you're going

- Specify where, including
- Specify who to call, and
- Entrance control



TIPS

- ✓ Know Your Limits
- ✓ Avoid the Fall Zone
- ✓ Check the Air
- ✓ Caution During Discovery
- ✓ Know Your Way
- ✓ Check Novice Readiness
- ✓ Build Good Habits
- ✓ Check for Rain
- ✓ Beware bendy squeezes
- ✓ **Tell Someone**

- ✓ Know your limits
- ✓ Avoid the fall zone
- ✓ Check the air
- ✓ Caution during discovery
- ✓ Know your way
- ✓ Check novice readiness
- ✓ Build good habits
- ✓ Check for rain
- ✓ Beware bendy squeezes
- ✓ Tell someone

Self-Rescue is your Most Likely Scenario

Most rescues take at least 2 hours to respond, and often 2-4 more hours to perform. Some are 36 hours or more. Rescue yourself if you can.

SPAR - Small Party Assisted Rescue

“How can a small party rescue itself with equipment on hand?”

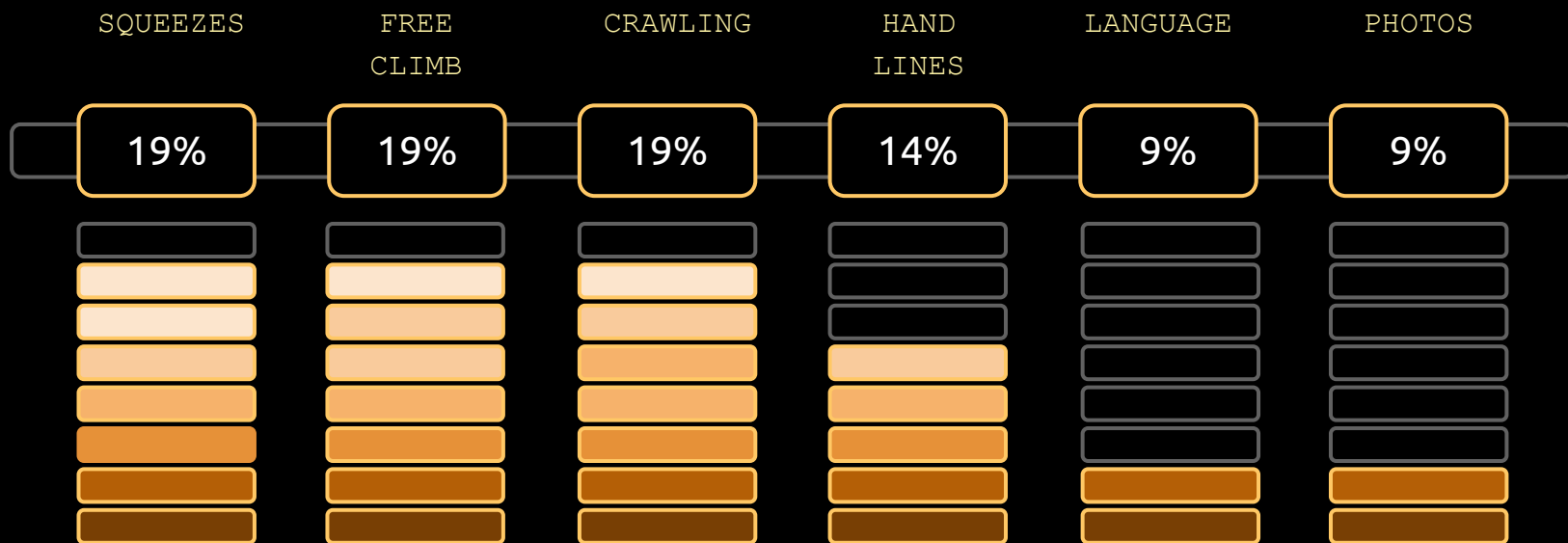
- NCRC 3-day class
- \$175 including lodging



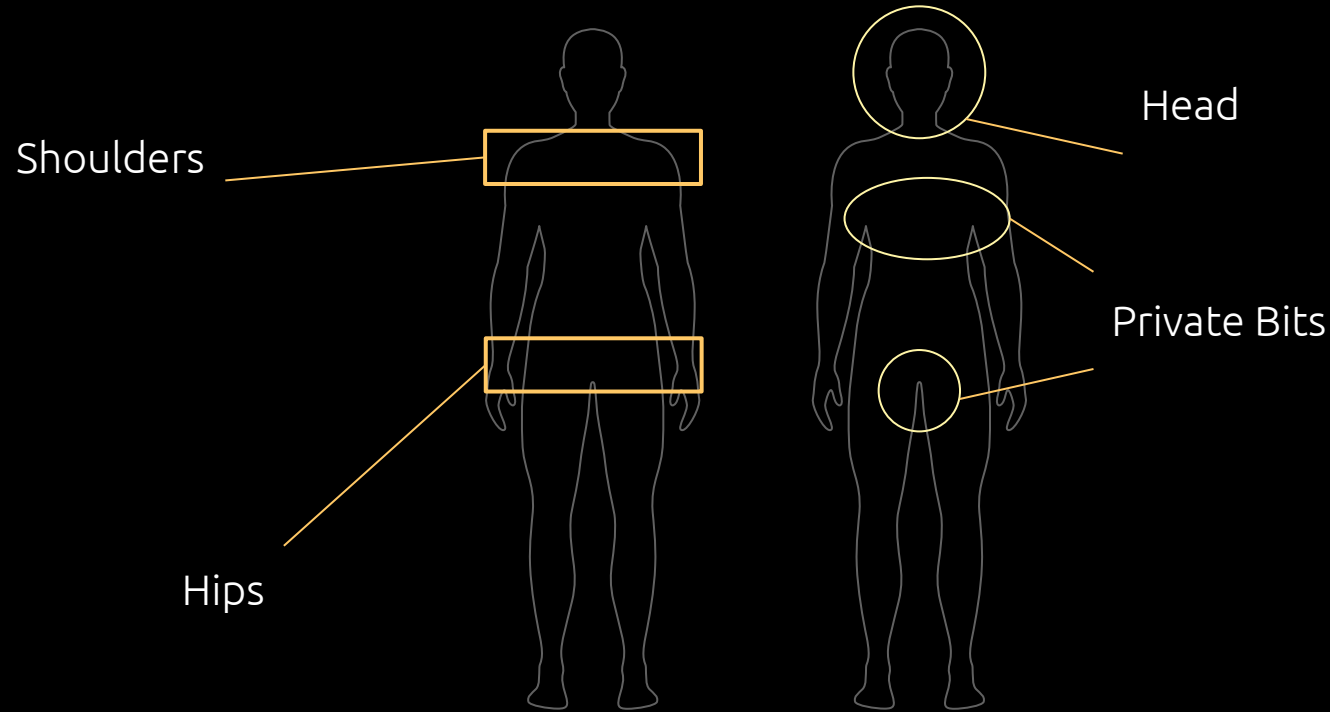
· Cave Basics ·

Jenna Crabtree

CAVING BASICS 101



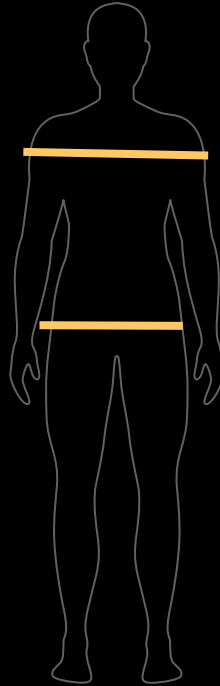
PASSING A SQUEEZE OR RESTRICTION



MATCHING YOUR BODY TO THE SQUEEZE

Considerations:

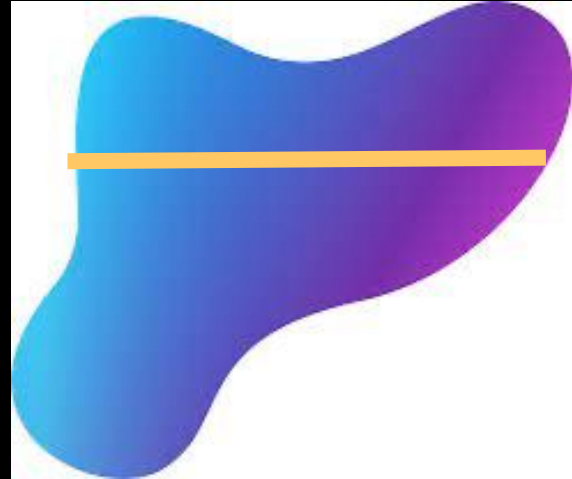
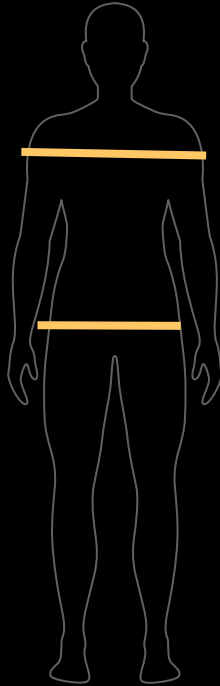
- Male or Female Body Type
- Matching the largest part of your body with the largest part of the squeeze
- knowing your limitations



MATCHING YOUR BODY TO THE SQUEEZE

Considerations:

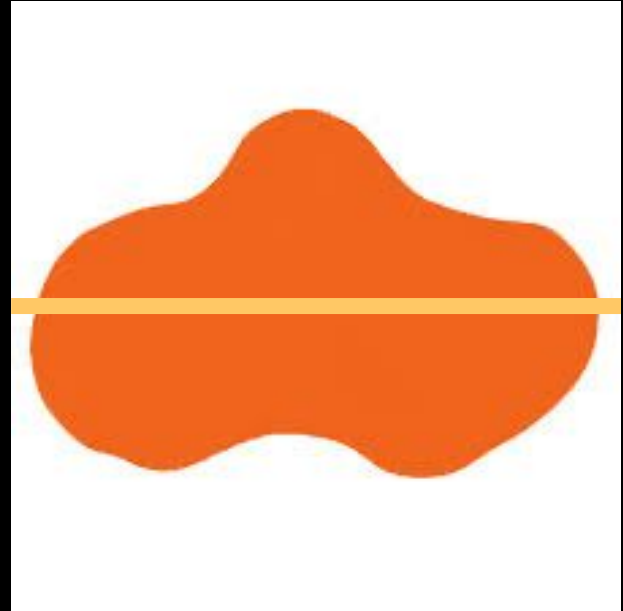
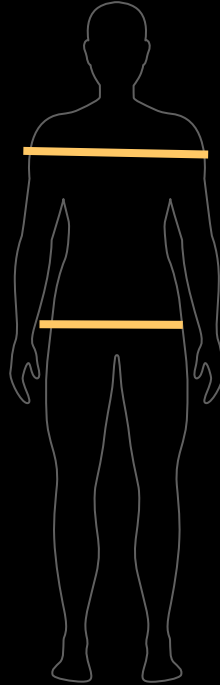
- Male or Female Body Type
- Matching the largest part of your body with the largest part of the squeeze
- knowing your limitations



MATCHING YOUR BODY TO THE SQUEEZE

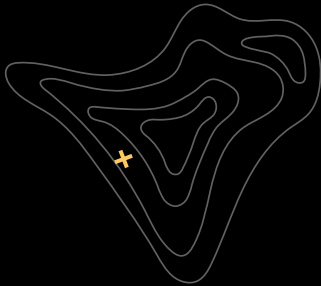
Considerations:

- Male or Female Body Type
- Matching the largest part of your body with the largest part of the squeeze
- knowing your limitations



COMMUNICATION

Letting peers know when you are climbing



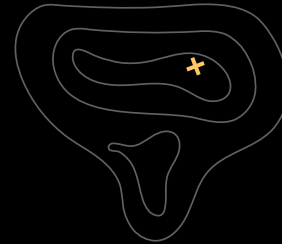
FOOT PLACEMENT

Choosing placements that are weight bearing



HAND PLACEMENT

Choosing placements that are weight bearing



CRAWLING

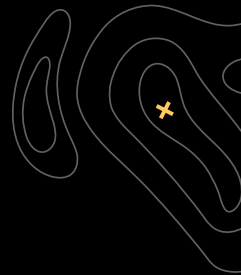




HAND LINES



LANGUAGE



COMMON CAVE COMMANDS



"On Ladder,
Off Ladder."

- ladder
- bridges
- ropes



"Slow Down"

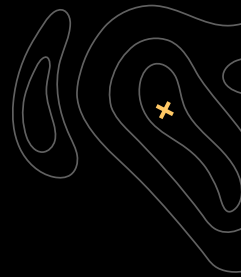
- pace of the group is
set by the slowest
member



"It's slippery
here." "Rock!"

- many hazards in a
cave
- passing info back
- situational
awareness

PHOTOS



CAMERA HACKS

LONG EXPOSURE



Allows the camera to adjust to the dim lit chamber or passage

CLOTHING



Brighter clothing shows up easier in photos!

LIGHTING



Placing lights in front of and behind the subject illuminates the chamber and the person. Beware of using too much light!

HAZARDS



Caves are harsh environments for phones and cameras. They are prone to being lost, cracked screens, and filling every hole with mud or water.



WELL LIT PHOTO:

Notice light placement
Behind & in front

*Whirlpool Cave 9/2/23
Photo by Jakob Denton*



BEHIND THE SCENES:

- Front lighting
- Move people if needed
- Move around lighting

*Whirlpool Cave 9/2/23
Photo by Jakob Denton*



POORLY LIT PHOTO:

Bad back lighting
Headlamp facing camera

Dogwood Cave June 2023
Photo by Jenna Crabtree



WELL LIT PHOTO:

Difference of chamber size
Lights not directly at camera
Super rad


Dogwood Cave June 2023
Photo by Jenna Crabtree

ANNOUNCEMENTS





Cave Dig this weekend canceled due to
rain:(



BUT

Knot Night
Friday February 2
ASS HOUSE 7pm
Featuring *The Descent*



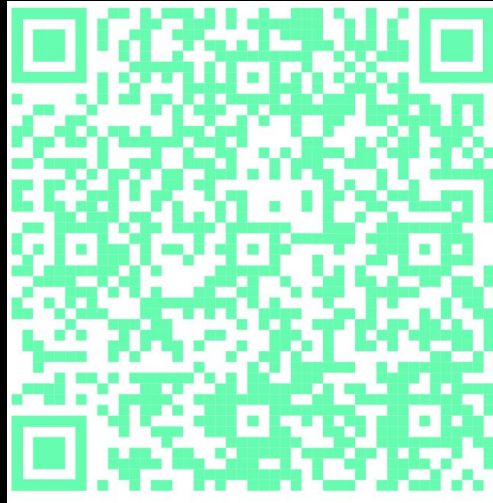
Hot Pocket Cave Dig

February 9-11
Pipe Creek, Texas
5 slots available



Honey Creek Cave

February 9-11
New Braunfels, Texas
5 slots available



Powell's Survey & Camp Sol Mayer Dig

February 16-18
Menard, Texas
12 slots available





VENMO @AGGIEGROTTO

And why it's okay on FaceBook sometimes.