

VTC Level 1 Trainer Course Required Equipment

1. VERTICAL CAVING GEAR.

- Commercially sewn seat harness designed for caving, with half-round central connector (carabiner, e.g. Petzl Omni, or maillon, e.g. Peguet Half Moon or Petzl Demi-Rond). Rock climbing harnesses with a vertical belay loop are only acceptable for use with Mitchell and Ropewalker ascending systems.
- Descender with compatible connector. Acceptable types:
 - Four-bar micro-rack; connector: oval maillon or locking carabiner
 - Bobbin style device (e.g. Petzl Simple, Petzl Stop) with braking carabiner (e.g., Petzl Freino, Raumer Handy, or carabiner); connector: locking carabiner or Freino.
 - Open-frame rack (five or six bars, up to 14" frame); connector: oval maillon (e.g. Peguet Maillon Rapide 7mm long opening), ANSI-gate (e.g., Petzl Bm'D) or captive-bar (e.g., Black Diamond GridLock) style locking carabiner, or two locking carabiners (*note: open-frame racks are not an ideal pairing with the Frog system; VTC recommends that an additional tethered ascender be used with this combination*).
- Ascending system consistent with VTC course requirements (see Module 5 and Attachment 1; consult with your trainer to confirm the ascending-system types being taught). For all systems:
 - All gear must be clean and in good condition (see Attachment 2: equipment inspection sheet);
 - All gear should be marked to denote its owner;
 - All life-safety hardware must be commercially manufactured and certified for use as PPE (personal protective equipment) in caving, climbing, or mountaineering applications;
 - Cowstail – short and long tethers, with carabiners at upper ends (long cowstail must have a locking carabiner if used to connect to an ascender). Short cowstail should generally be just long enough to reach a rebelay anchor (typically 40-45 cm). Long cowstail should be long enough so that the user can comfortably operate the cam of an attached ascender while hanging from it. If user-tied, the cowstail (and any other tethers intended for PPE use) must be made of dynamic rope certified to UIAA or EN standards as "single" climbing rope (generally 9-11 mm diameter). If commercially produced, cowstail or tether must be designed and rated for PPE use.
 - Any "soft" goods (e.g., nylon, polyester, etc. used for life safety must be within manufacturer's rated maximum lifetime (generally ten years from date of manufacture).

2. HELMET. A caving or climbing helmet. Must be marked as meeting UIAA and/or EN certification standards, with a 3 or 4-point non-elastic chinstrap. Must be within manufacturer's rated maximum lifetime (generally ten years from date of manufacture).

3. LIGHTS. Three dependable, independent sources of light. At least two must be helmet mountable.

4. DURABLE WARM CLOTHING. Must be appropriate for expected outdoor and cave conditions.

5. GLOVES. Leather or synthetic equivalent on palms. Must have full fingers.

6. BOOTS. Sturdy, lug-soled hiking boots or rubber boots with good support. NO tennis shoes!

7. FOOD. Quick energy, ready to eat (trail mix, candy bars, cheese, etc.).

8. WATER. At least 2 liters capacity.

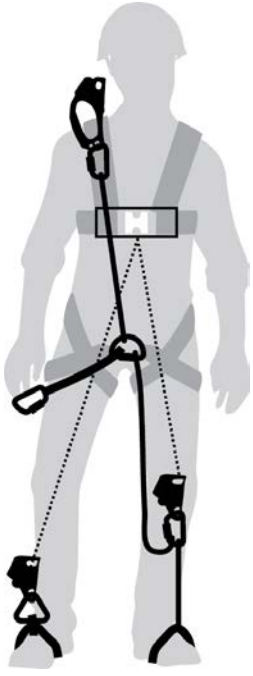
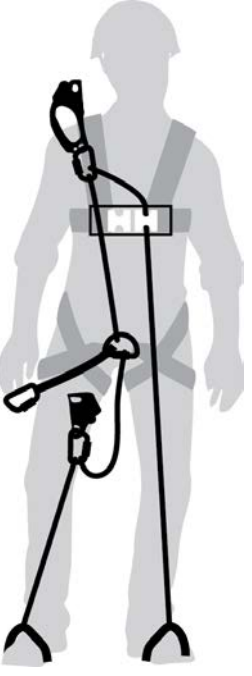
9. SMALL PACK.

10. TWO CARABINERS. Two carabiners that are not part of your SRT gear. Locking strongly preferred.

11. FIRST AID KIT. For yourself (for the cave day).

Note: VTC does not endorse or recommend specific brands or models of vertical equipment; any such mentions are intended only as examples.

Attachment 1. Ascending System Components

Frog		Texas	
 (Two-tether setup; third tether is acceptable)	• Chest ascender (e.g. Petzl Croll), connected directly to central connector • Chest harness, designed for Frog system • Upper ascender (e.g. Petzl Ascension, Petzl Basic) with tether to central connector. Tether may be long cowstail (preferred) or a dedicated (third) tether. • Footloop, single or double, constructed with static cord (e.g. Dyneema or Kevlar) or webbing, with connector to upper ascender • Cowstail (see requirements above) • Foot ascender (e.g. Petzl Pantin) (optional but recommended if using single footloop) • Emergency ascender/rope grab (e.g. Petzl Tibloc, standard ascender, or 8mm Prusik loop)		• Upper ascender (e.g. Petzl Ascension, Petzl Basic) with tether. Tether may be long cowstail (preferred) or a dedicated (third) tether. • Lower ascender (e.g. Petzl Ascension, Petzl Basic) with a dedicated tether to central connector. • Footloop, single or double, constructed with static cord (e.g. Dyneema or Kevlar) or webbing, with connector to lower ascender. • Cowstail (see requirements above) • Foot ascender (optional, but recommended if using a single footloop). • Emergency ascender/rope grab (e.g. Petzl Tibloc, standard ascender, or 8mm Prusik loop)
Ropewalker		Mitchell	
	• Upper ascender tethered to the central connector. Tether may be long cowstail (preferred) or a dedicated tether. • Chest harness with single or double chest roller • Ascender that floats at the knee tethered to the central connector and a footloop (and recommended chicken loop) • Ascender attached to a footloop (and recommended chicken loop) • Cowstail (see requirements above) • Bungee cord attached to both lower ascenders, running through a small pulley (preferred) or connector attached to the chest roller		• Upper ascender tethered to the central connector. Tether may be long cowstail (preferred) or dedicated tether. • Chest harness with double chest roller • Lower ascender tethered to the central connector. Tether long enough to fully straighten leg. • Footloops (with recommended chicken loops). One footloop runs through chest roller, and is connected to the upper ascender. Lower footloop is connected to lower ascender. Constructed of static rope or cord (e.g. static rope, or Dyneema or Kevlar cord). • Cowstail (see requirements above) • Emergency ascender/rope grab (e.g. Petzl Tibloc, standard ascender, or 8mm Prusik loop)

Attachment 2: Level 1 Vertical Gear Inspection Sheet

INDIVIDUAL: EQUIPMENT CHECK OFFS

The VTC course is standardized, so that all students learn using the same basic methods. While students are encouraged to continue vertical caving and adapt their system to their personal preferences, we ask that they use the standard VTC equipment setup. We therefore expect our instructors to similarly use the appropriate equipment. All equipment should meet the following guidelines. Exceptions can only be provided at the discretion of the lead MT.

	MT Initials			
	Frog	Texas	Mitchell	Ropewalker
	PPE			
Helmet				
Mounted light				
Gloves				
Appropriate footwear				
Seat harness				
Central connector				
	Descender			
Bobbin				
Microrack				
Rack				
	Ascending system			
Chest harness				
Chest roller				
Cowstail				
Upper ascender				
Chest ascender				
Lower ascender				
Knee ascender				
Required foot ascender				
Chicken loops				
Footloop				
	Optional			
Emergency ascender				
Foot ascender				
QAS*				
	Other			
VTC Trainer Book				

Harness:
Appropriate for caving. Correct size, straps sufficiently long. No cuts, burns or other damage. No signs of excessive age (10 yr max) or wear. Stitching intact. Adjustment buckles and hardware damage free.

Central connector:
Appropriate hardware. Free of pitting, corrosion, and nicks. Opens and closes freely. No damage to threads.

Descender:
Appropriate for vertical system used*. No excessive wear. Appropriate connector to central connector. Opens and closes easily. No difficulty attaching to rope. Size appropriate (racks no more than 14”).

Chest harness:
Appropriate for vertical system and ascenders used. Size appropriate.

Chest roller:
Appropriate hardware. Free of pitting, corrosion, and nicks. Opens and closes freely. Rollers move smoothly.

Ascenders:
Appropriate hardware. Appropriate hardware. Free of pitting, corrosion, and nicks. Opens and closes freely. No significant wear on cam. Appropriate tether to central connector.

Cowstails:
Appropriate for caving. Length and knots appropriate. No significant age or wear. Attached carabiners (locking or non-locking).

Footloops:
Appropriate for vertical system used. Length appropriate and adjustable. No cuts, burns or other damage. No signs of excessive age or wear.

Emergency ascender:
Encouraged; however, a full handled ascender on a separate tether (QAS) is only required with a Ropewalker system.

*The use of a QAS is recommended if using a full-size rack with a Frog system.