The creation of this Competencies Checklist was accomplished through a joint venture between Canyons & Crags and Canyon Guides International (CGI), both members of Canyoneering Karma, a cooperative network of instructors, canyon guides, guide services, gear manufacturers and others who are dedicated to promoting safety and self-reliance in canyoneering.

A step forward from current skills lists, this multipurpose competency checklist serves as:

- A course design guide for CGI Instructors
- A study guide for aspiring professional guides
- A study guide for recreational canyoneers and canyon leaders
- A matrix of competencies aligned with course levels
- A course selection guide for newcomers that want to get instruction from certified instructors

This is not only a document that lists canyoning skills and competencies; it also offers an instructional framework and philosophy to teach rope work and manage risk.

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Progressive Learning

This document presents a practical progression of competencies based on your expanding roles in a canyoneering team. From Entry Level Canyoneer through Canyon Leader, as your knowledge and skills increase, so do your contributions to your team.

To supplement your self-guided learning, we recommend you pursue progressive levels of hands-on training from instructors who are certified by Canyon Guides International (CGI).

The CGI recreational canyoneering curriculum follows a series of competency levels and represents the most comprehensive technical training available, designed to enhance safety, self-reliance, efficiency and enjoyment for canyoneers of all experience levels.

CANYON GUIDES INTERNATIONAL

Entry Level Canyoneering
Level I - Technical Canyoneering
Level II - Advanced Canyoneering
Level III - Canyon Leadership

Guide Level 1 - Aspirant/Assistant Guide
Guide Level 2 - Fixed Site Single Pitch Guide
Guide Level 3 - Pro Canyon Guide
Guide Level 4 - Master Canyon Guide

Knowledge Base

Competencies checklists reference the ART of Canyoneering Knowledge Base where you will find a curated collection of learning resources to help you acquire the knowledge and skills you need to advance through progressive levels of canyoneering competence. There is no cost to access the Knowledge Base; however, donations are appreciated.

canyonsandcrags.com/knowledge-base

Your Canyoneering Toolbox

When the only tool you have is a hammer, every problem looks like a nail.

Different problems and tasks require different tools; some basic, some specialized. Even if all problems were nails, did you know there are at least 50 Different Types of Hammers?

We like the toolbox analogy for communicating the types of skills (tools) needed for canyoneering. This sport comes with diverse challenges that require a diverse set of tools. You will need more than one tool to be safe and efficient, but it is better to start with a basic set (one tool for each compartment in your toolbox), master those tools, then add more specialized tools as you gain experience and competence — and the need for more tools arises.

When your situation calls for a single rope releasable contingency system, you only need to know one, and the best choice will be the one that you learned well and have been practicing.

When you need to ascend a fixed rope, you only need to know one method that is efficient for you, using the gear you normally carry.

This principle forms the foundation of our competency progressions.

		EL	I	II	III
Online Learning	Canyoneering Essentials				
	Risk Management				
	Gear Selection, Use & Care				
	Knot Craft				
	Forces-Friction				
Hands On Training & Practice	Anchors & Rigging				
	Techniques on Rope				
	Rescue Systems				
	Slot Canyon Skills				
	Aquatic Skills				

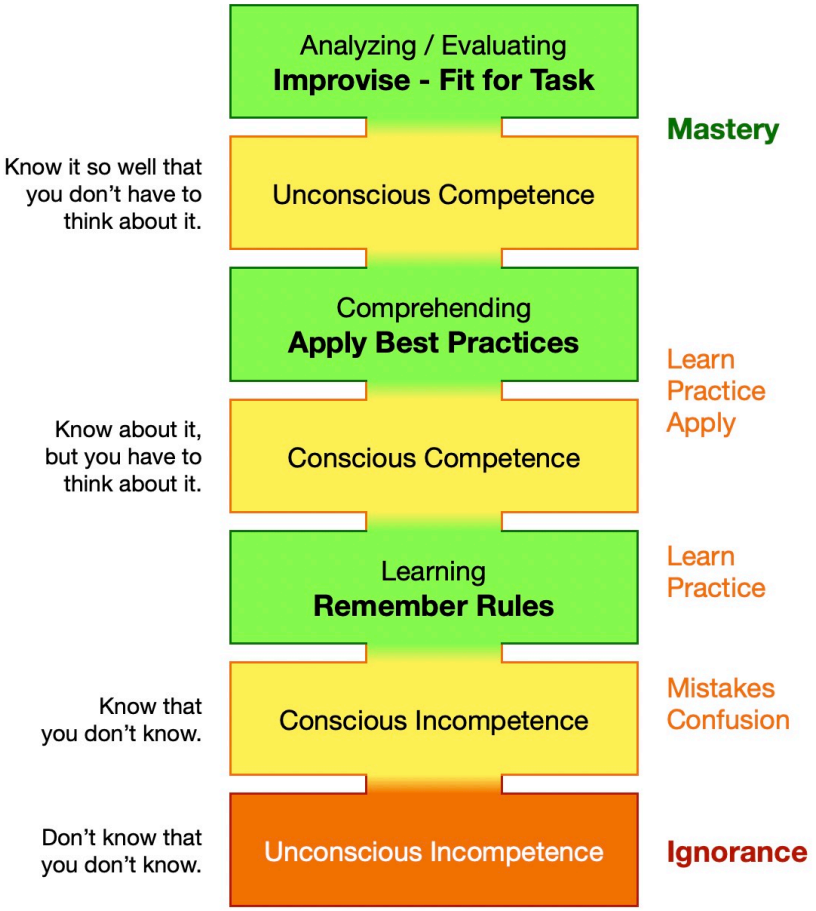
ART of Canyoneering Training Matrix

We understand that people acquire knowledge and skills from a variety of sources and that people learn at different paces. You may have one level of competence in Anchors & Rigging and a different level of competence in Techniques on Rope.

For this reason, our training is organized in modules that include online learning resources and hands-on training and practice. This approach allows you to participate in only the training modules you need without taking an entire course that covers material you already know.

Stages of Learning - Mastering Knowledge and Skills

As we learn and acquire new skills we go through four stages:



1. Unconscious Incompetence
We are unaware of our deficiency and must become conscious of it before learning can begin.

2. Conscious Incompetence
We feel uncomfortable as we begin to realize how little we know. We recognize the need to improve and make a commitment to learn by remembering "rules".

3. Conscious Competence
We start to comprehend the principles behind the systems and techniques we use. Our confidence increases as we continue to learn and improve.

4. Unconscious Competence
Skills become second nature. We can perform without thinking.

Once we have mastered a skill we are able to analyze and evaluate it, to improvise, to improve old systems and to develop new solutions to problems.

Online Exams - Your Diagnostic Tools

Keep in mind that it is quite possible for someone to be at one stage of learning for some skills and at other stages for other skills. For example, you may have mastered Techniques on Rope, but remain unconsciously incompetent about Rescue Systems.

We provide a series of online exams that you can use to help with your own self-assessment. Questions on the exams are organized by category so you can easily determine in which areas you need more instruction and practice.

Competency Progressions Based on Your Role in a Team

Competencies are Cumulative

At each level a canyoneer is expected to possess all of the knowledge and skills for that level as well as all lower levels.

Entry Level Canyoneering

An entry level canyoneer is expected to possess sufficient knowledge, skills and gear so that they are not a liability to a team in canyons (up to and including Class 3).

Level I - Technical Canyoneering

A Level I canyoneer is expected to possess sufficient anchor and rigging skills, along with appropriate gear, so they become a contributing member of a team descending easy to intermediate canyons (up to and including Class 3).

Level II - Advanced Canyoneering

A Level II canyoneer is expected to possess sufficient anchor and rigging skills, along with appropriate gear, so they become a contributing member of a team descending intermediate to advanced canyons (up to and including Class 4).

Level III - Canyon Leadership

A Level III canyoneer is expected to possess sufficient technical and group management skills, along with appropriate gear, to lead a team descending beginner to advanced canyons, including when things don't go completely as planned.

Professional Canyon Guide

If your plans include becoming certified as a professional canyon guide, your next step will be to participate in Level 1/2 canyon guide training and assessment with an instructor who is certified by Canyon Guides International.

Canyoneering Essentials	EL	I	II	III
Knowledge Base - The material in the Canyoneering Essentials section will be included in the online exams at every competency level. Material includes common causes of accidents, meteorology and flash flood awareness, map reading, land navigation, and wilderness first aid.	✓	✓	✓	✓

Risk Management	EL	I	II	III
Knowledge Base - Demonstrate an understanding of the Dunning-Kruger effect and its implications for learning in the context of canyoneering.	✓	✓	✓	✓
Knowledge Base - Demonstrate an understand of Heuristic Traps and their implications on group decision making in the context of canyoneering.	✓	✓	✓	✓
Knowledge Base - Demonstrate an understanding of objective and subjective hazards and how they come together to create risk.	✓	✓	✓	✓
Knowledge Base - Demonstrate an understanding and use of a Risk Matrix for assessing risk.	✓	✓	✓	✓
CRITICAL SKILL: Perform a linear system safety check, including anchor, rigging, rope, gear, harness, helmet, danglies.	✓	✓	✓	✓
Conduct appropriate safety briefing(s)				✓
Complete Canyon Leadership training course.				✓

Gear Selection, Use and Care	EL	I	II	III
Understand and apply good rope and equipment care and handling practices	✓	✓	✓	✓
Demonstrate coiling a rope	✓	✓	✓	✓
Demonstrate stuffing and using a rope bag	✓	✓	✓	✓
Understand the various fibers and construction used in rope, cord, and slings; explain pros and cons of each for canyoneering applications		✓	✓	✓
Understand considerations for selecting multi-purpose gear; consider combinations that allow for efficient accomplishment of tasks		✓	✓	✓
Rig and demonstrate use of advanced lanyards: (1) fixed “Y”, (2) adjustable “Y”, (3) chain PAS — include short clipping			✓	✓
Manage group gear selection and distribution, pack management				✓

Knot Craft	EL	I	II	III
Tie and inspect with rope/cord: (1) figure 8 knot on a bight, (2) rethreaded figure 8 knot, and (3) rethreaded figure 8 bend	✓	✓	✓	✓
Tie and inspect with rope: flat overhand (1) single, (2) double, (3) stacked	✓	✓	✓	✓
Tie and inspect with webbing: (1) overhand knot on a bight, (2) rethreaded overhand knot, (3) rethreaded overhand bend (aka water knot)	✓	✓	✓	✓
Tie and inspect with cord: 3-wrap Prusik hitch, Klemheist hitch	✓	✓	✓	✓
Tie and inspect with VT Prusik: (1) valdotain tress, (2) asymmetric Prusiks, (3) French Prusik for autoblock self-belay		✓	✓	✓
Tie and inspect with rope: (1) clove hitch, (2) munter hitch		✓	✓	✓
Tie and inspect with rope: alpine butterfly		✓	✓	✓
Tie and inspect with webbing: Frost knot		✓	✓	✓
Tie and inspect scaffold knot for lanyard connections		✓	✓	✓
Tie and inspect with rope: munter-mule-overhand			✓	✓
Tie and inspect with rope: bowline knot with Yosemite finish			✓	✓
Tie and inspect with cord: Purcell Prusik			✓	✓

Forces-Friction	EL	I	II	III
Understand how “hard” rappel starts can increase load on an anchor (leverage) and how “soft” rappel starts can decrease the load (friction)	✓	✓	✓	✓
Understand the implications of fall factor and situations to avoid	✓	✓	✓	✓
Understand vector forces related to multi-point anchor construction and horizontal traverse safety lines		✓	✓	✓
Understand how mechanical advantage can increase forces on an anchor			✓	✓
Understand vector forces related to tensioned guide ropes			✓	✓

Competencies

Anchors & Rigging	EL	I	II	III
Rig a single point natural anchor with webbing using: (1) simple single wrap, (2) redundant wrap, (3) cinching wrap (i.e. wrap 2 pull 1)		✓	✓	✓
Rig and use static courtesy rigging		✓	✓	✓
Rig and evaluate 2-point anchors with webbing using any of these acronyms: (1) EARNEST, (2) SERENE, (3) STRADS		✓	✓	✓
Demonstrate linking two anchor bolts using a temporary Supplemental Anchor System (SAS) (i.e. quad), no webbing necessary		✓	✓	✓
Rig and use static single-rope rigging: (1) knot block, (2) carabiner block; explain safety considerations		✓	✓	✓
Rig and use “clipped block” static twin rope system		✓	✓	✓
Rig and use simple contingency system: (1) single rope, (2) twin rope		✓	✓	✓
Demonstrate proper placement of: (1) mechanical bolts, (2) glue-in bolts			✓	✓
Rig and use static twin rope system: (1) butterfly, (2) stone knot			✓	✓
Rig and use a retrievable safety line for horizontal traverse			✓	✓
Rig and use a retrievable safety line for running belay using Prusiks on semi-steep terrain moving up or down			✓	✓
Rig and use a tensioned diagonal rope for: (1) guided rappel, (2) guided lower, (3) guided haul			✓	✓
Rig and use: (1) retrievable anchor webbing, (2) retrievable toggle system			✓	✓
Rig and use high-strength tie-off at mid point of rope, then convert for last person down to: (1) CEM, (2) macrame				✓
Rig and use dynamic courtesy rigging for extremely difficult rappel starts				✓
Rig and demonstrate systems for efficient lowering and belaying: (1) yo-yo, (2) rapid 2:1				✓

Techniques on Rope	EL	I	II	III
Understand and use basic commands for rappelling, climbing and belaying	✓	✓	✓	✓
Rig rappel device for appropriate friction on ropes 8mm to 10mm, single and double strand, understanding the variables that contribute to friction requirements	✓	✓	✓	✓
Perform controlled rappels up to 100 feet (30 meters); add friction while rappelling using (1) body wrap and (2) rappel device features	✓	✓	✓	✓
Demonstrate a “soft” start to minimize load on the anchor	✓	✓	✓	✓
Lock off mid-rappel using: (1) leg wrap, (2) rappel device features	✓	✓	✓	✓
Demonstrate proper bottom belay (aka fireman belay)	✓	✓	✓	✓
Rig and use a top rope belay: (1) for someone who is on rappel, (2) for someone who is asending, (3) for someone climbing down, (4) for someone climbing up		✓	✓	✓
Set up and use a self-belay, explain considerations for rigging above or below rappel device		✓	✓	✓
Pass a knot while rappelling using a VT Prusik (tied as valdotain tress)		✓	✓	✓
Ascend fixed rope from ground up to top using: (1) friction hitches, (2) mechanical ascending devices		✓	✓	✓
Demonstrate how to correct uneven ropes when rappelling on double strand		✓	✓	✓
Demonstrate transitions (aka changeovers): (1) from rappel to ascend, (2) from ascend to rappel			✓	✓
Pass a knot while ascending, demonstrate clipping short			✓	✓
Ascend and descend a tensioned guide rope			✓	✓
Demonstrate proper techniques for multi-pitch rappels			✓	✓
Rig and demonstrate lower-rappel combo rigging so only the last person down needs to pass a knot on long rappels				✓
Demonstrate pre-rigging less competent partners for: (1) horizontal traverse, (2) semi-steep terrain moving up or down, (3) multi-pitch rappel				✓

Rescue Systems	EL	I	II	III
Demonstrate self-rescue using rope grab and foot loop to: (a) step up to take tension off rappel device, (b) hold position while freeing stuck gear	✓	✓	✓	✓
Knowledge Base - Demonstrate familiarity and application of the Canyon Rescue Risk Algorithm		✓	✓	✓
Demonstrate the safe release of contingency rigging to lower a rappeller in distress, preferably with a hands-free backup		✓	✓	✓
Demonstrate a load shift rescue from releasable contingency rigging: (1) with a top rope belay, (2) lowering the end of a rope		✓	✓	✓
Demonstrate a short lift rescue using: (1) no mechanical advantage, then convert to 3:1, (2) 2:1 drop loop, then convert to 6:1		✓	✓	✓
Demonstrate how to secure at the anchor, two strands of rope rigged double when a person on rappel discovers the ends are uneven		✓	✓	✓
Demonstrate converting single-rope static rigging to lower			✓	✓
Demonstrate buddy rappels: (1) assisted rappel (one rope), (2) tandem rappel (two ropes), (3) simul rappel (counterweight)			✓	✓
Demonstrate improvised patient carry systems			✓	✓
Demonstrate a pick-off rescue, descending to subject on a new rope				✓
Demonstrate multiple methods for creating a Progress Capture Device (PCD) for a raising system				✓
Demonstrate a raise using appropriate mechanical advantage to bring a subject to the top				✓
Demonstrate converting tail-up toggle rigging to raise				✓
Demonstrate a rescue from below the subject - ascending the subject's rope, passing the subject, lowering the subject to safety				✓
Demonstrate a balancier pick-off rescue, descending to the subject on subject's tensioned rope with a VT Prusik (tied as valdotain tress)				✓

Slot Canyon Skills	EL	I	II	III
Demonstrate the ability to move on 3rd class (scrambling) and 4th class (easy vertical climbing) terrain	✓	✓	✓	✓
Demonstrate chimneying, stemming and bridging techniques	✓	✓	✓	✓
Demonstrate spotting a climber moving up or down, partner capture (climbing down), and partner assist (climbing up).		✓	✓	✓
Construct and use a deadman anchor: (1) buried, (2) cairn		✓	✓	✓
Rig and use human backups for a marginal anchor		✓	✓	✓
Demonstrate basic pothole escape techniques: (1) partner assist, (2) pack/ bag toss, (3) octopus toss		✓	✓	✓
Demonstrate aid climbing techniques for difficult pothole escapes			✓	✓
Rig and inspect multi-point knot chock and chock stone anchors			✓	✓
Demonstrate safe use of sand tarp and sand bag anchors			✓	✓
Rig and use a tail up toggle system (i.e. Smooth Operator, Fiddlestick) for rope retrieval, understand pros and cons			✓	✓

Aquatic Skills	EL	I	II	III
Demonstrate ability to walk in flowing water and cross streams	✓	✓	✓	✓
Demonstrate the ability to swim with gear, using flotation if necessary	✓	✓	✓	✓
Demonstrate or explain proper body position and technique for: (1) jumping, (2) water slides	✓	✓	✓	✓
Recognize natural stream hazards: strainers, siphons, undercuts, log jams, foot entrapment		✓	✓	✓
Understand special gear considerations for swift water canyons		✓	✓	✓
Demonstrate appropriate swimming techniques: (1) defensive swimming, (2) aggressive swimming, (3) safe water entry, (4) moving from current into eddy		✓	✓	✓
Demonstrate good technique for rappelling in waterfalls		✓	✓	✓
Understand the swift water rescue algorithm: reach, throw, row, tow, go			✓	✓
Demonstrate proper use of a swift water rescue throw bag			✓	✓
Rig and use tensioned diagonal rope for stream crossing			✓	✓

Post-Training Recommendations	EL	I	II	III
Continue to study online using learning resources in the Knowledge Base	✓	✓	✓	✓
Use online exams as diagnostic tools to help determine your current level of knowledge in all categories, including Canyoneering Essentials	✓	✓	✓	✓
Pursue training to acquire knowledge and skills in ancillary topics such as map reading, land navigation, wilderness first aid, wilderness survival, rock climbing, swift water rescue, and outdoor leadership	✓	✓	✓	✓
Practice the technical skills you have learned in low-risk conditions with competent supervision	✓	✓	✓	✓
Participate in Canyoneering Karma canyon rendezvous to network with other canyoneers, meet new partners, seek mentors or offer to mentor others	✓	✓	✓	✓
Volunteer for service projects to help preserve canyons for future generations: including trail maintenance, cleanup and graffiti removal, and anchor maintenance	✓	✓	✓	✓
Descend easy canyons with competent leader/guide/mentor	✓	✓		
Descend canyons of appropriate difficulty for the training level you have completed with competent partners/mentors		✓	✓	✓
Pass online exam for next higher level training	✓	✓	✓	
Participate in a hands-on course to acquire anchor and rigging knowledge and skills at the next higher level	✓	✓	✓	

Canyoneering Gear Checklist

NOTE: Instructors usually have gear available for their students to use during a course, and sometimes available for purchase. Be sure to inquire before you invest money in new gear.

Individual Gear	EL	I	II	III
☐ Helmet	✓	✓	✓	✓
☐ Harness (canyoneering style preferred), with butt protection	✓	✓	✓	✓
☐ Lanyard; Simple “I”	✓	✓		
☐ Lanyard; (a) fixed “Y”, (b) adjustable, (c) full-strength chain			✓	✓
☐ Rappel/Belay Device (canyoneering style preferred, no ATCs)	✓	✓	✓	✓
☐ Locking HMS Carabiners	3	6	6	6
☐ VT Prusik(s) (7mm preferred)		✓	✓	✓
☐ 12-14 feet (4 meters) accessory cord, 6-7mm (knot tying practice)	✓	✓	✓	✓
☐ 20 feet (6 meters) of webbing, 1-inch tubular (knot tying practice)	✓	✓	✓	✓
☐ 2 quick links, 5/16 inch (8 mm)	✓	✓	✓	✓
☐ Totem or figure 8 for rigging		✓	✓	✓
☐ Dyneema Sling (180-240 cm)		✓	✓	✓
☐ MicroTraxion (or equivalent)		✓	✓	✓
☐ Ascender; (a) Croll (preferred), (b) Basic, or (c) Tibloc		✓	✓	✓
☐ Mini Pulley or RollClip Carabiner (must be high efficiency > 80%)			✓	✓

☐ Backpack (canyoneering style with drainage)	✓	✓	✓	✓
☐ Appropriate Footwear	✓	✓	✓	✓
☐ Appropriate Attire	✓	✓	✓	✓
☐ Water, Food	✓	✓	✓	✓
☐ Headlamp or Flashlight	✓	✓	✓	✓

NOTE: Instructors usually have gear available for their students to use during a course, and sometimes available for purchase. Be sure to inquire before you invest money in new gear.

Conditional Individual Gear	EL	I	II	III
☐ Wetsuit (sufficient thickness to provide necessary thermal protection for anticipated water temperatures) or quality drysuit	✓	✓	✓	✓
☐ Neoprene Socks (sufficient thickness to provide necessary thermal protection for anticipated water temperatures)	✓	✓	✓	✓
☐ Neoprene Helmet Liner (for extreme cold conditions)				
☐ PFD or Flotation	✓	✓	✓	✓
☐ Dry Bag or Dry Keg	✓	✓	✓	✓
☐ Personal Care Items (i.e. medications, sunscreen, hat)	✓	✓	✓	✓

Group Gear		
☐ Rope(s)		
☐ Rope Bag(s)		
☐ Anchor Material		
☐ First Aid Kit		
☐ Navigation Tools (map, compass, GPS)		