



**ACADIANX**  
Explore Your World

## Beginner to Advanced Backpacking Series



# Level 1 – Afternoon Hike

**Type:** Afternoon Hike

**Duration:** 3 – 4 hours

**Distance:** 3 – 5 miles

**Goals:** Introduction to hiking, Intermediate distance hike with easy terrain.

**Topics:** 10 Essentials, Basic Navigation, Basic Routefinding Skills.

## 1 The Ten Essentials

Packing the “Ten Essentials” whenever you step into the backcountry, even on day hikes, is a practice that could one day save your life. As a former operator in Naval Special Warfare I can say that we continually engaged in extremely dangerous and life-threatening activities because we routinely planned and prepared to execute every aspect of those activities in a manner that would allow all those engaged to arrive home safely. This philosophy is the basis of what the “Ten Essentials” is built upon. It is meant to help you control a difficult or possible life-threatening situation should it arise. If heading out on a multi-day adventure into the backcountry you will obviously need more than these 10 items, but this list is intended for any stroll into the wilderness. It’s when something goes wrong that you’ll truly appreciate the value of carrying these items that could be the difference between survival or tragedy.

The original Ten Essentials list was assembled in the 1930s by The Mountaineers, a Seattle-based organization for climbers and outdoor adventurers. Their goal was to help people be prepared for emergency situations while in the backcountry. The original list included a map, compass, sunglasses and sunscreen, extra clothing, headlamp/flashlight, first-aid supplies, fire starter, matches, knife and extra food.

Since that time, the list has evolved to a “systems” approach rather than including individual items due to the advances in technology. Based on the systems approach I have created my own as you can see here:

1. **Navigation:** compass, map, altimeter, GPS device, satellite messenger or personal locator beacon (PLB)
2. **Illumination:** headlamp/flashlight plus extra batteries

3. **Sun protection:** sunglasses, sun-protective clothes and sunscreen
4. **First aid:** to treat minor injuries but can include foot care and insect repellent (as needed)
5. **Tools/Knife:** plus a gear repair kit
6. **Fire:** matches, lighter, tinder and/or stove
7. **Shelter:** should be readily available (can be a light emergency bivy)
8. **Nutrition:** Enough to endure a longer than expected
9. **Hydration:** Enough to endure a longer than expected
10. **Insulation:** Enough to endure longer than expected

The exact items from each system that you take can be tailored to the conditions and length of trip you’re planning. For example, if you’re looking to take a day-hike that you can easily navigate you might choose to take only a map, compass and PLB. On a longer, more navigationally complex hike, you might decide you also now want your GPS and altimeter to help you find your way. When deciding what to bring, you should consider all the environmental factors like weather, difficulty, duration, and distance from help.

## 2 Basic Navigation

### 2.1 Maps

The most basic tool for studying the layout of an area is the map. The map is essentially a two-dimensional representation of a three-dimensional world. The layout (where everything is) is depicted on the map while the size (elevation) and features (forests, rivers, etc.) of the land is depicted by lines, colors, and symbols. There are many types of maps you can use so let’s look at each to determine which maps will best suit your needs.

#### 2.1.1 Trail/Recreational/Land Management Maps

These maps are beneficial because they are put out by the people that manage the land day to day, so they are typically updated with



the latest information such as ranger stations, trails, roads, and other factors caused by human interference. They are usually restricted to only showing locations, but no elevation changes or gradients related to the land's topography.

### 2.1.2 Guidebook Maps

Guidebook maps can vary in quality. Some are simply hand sketches while others can be very accurate depictions of the land features such as topography. They can be very useful and contain key information on roads, trails, and climbing routes.

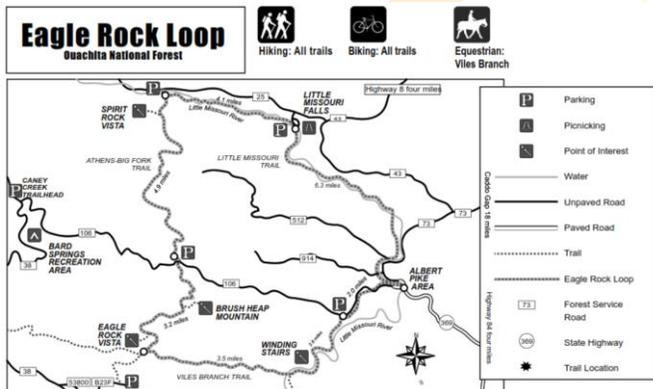


Figure 1: Trail map of Eagle Rock Loop published by the National Forest Service

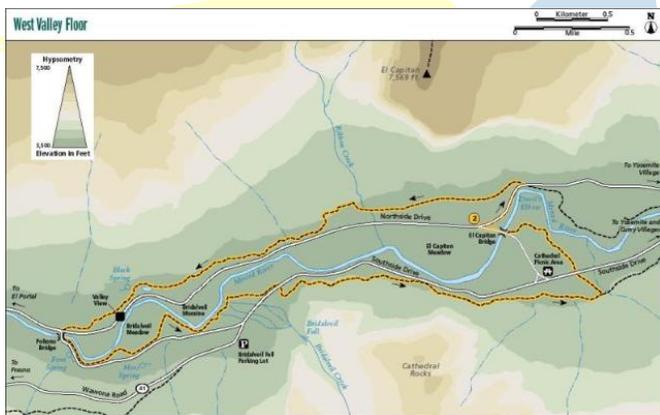


Figure 2: Guidebook map - Credit - "Hiking Yosemite National Park: A Guide to 62 of the Park's Greatest Hiking Adventures" by Suzanne Swedo

## 2.2 The Compass

The magnetic compass is the most familiar compass type. It functions as a pointer to "magnetic north", the local magnetic meridian, because the magnetized needle at its heart aligns itself with the horizontal component of the Earth's magnetic field. The magnetic field exerts a torque on the needle, pulling the North end or pole of the needle approximately toward the Earth's North magnetic pole, and pulling the other toward the Earth's South magnetic pole. The needle is mounted on a low-friction pivot point, so it can turn easily.

When the compass is held level, the needle turns until, after a few seconds to allow oscillations to die out, it settles into its equilibrium orientation.

The most essential type of compass for navigation is known as the baseplate compass which is used for finding direction and for measuring and plotting bearings on a map. The baseplate compass does not require an external power source or calibration to work and can operate in almost any condition and weather. Figures 3 and 4 are examples of certain types of baseplate compasses.

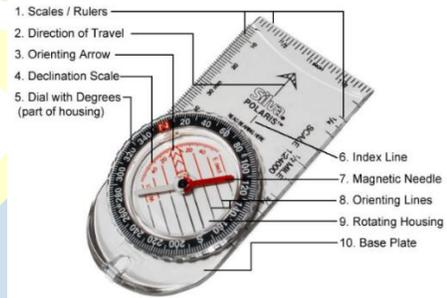


Figure 3: Baseplate compass and features



Figure 4: Baseplate compass with sighting mirror and features

## 2.3 Bearings on a Map

The compass is your primary map tool and is used as a protractor to both measure and plot a bearing. You will have no need of the magnetic needle because both magnetic north and magnetic declination serve no purpose in these tasks. If you were going to orient the map to true north, you would have need of the needle but since this is not necessary when measuring or plotting bearings, it is not needed.

### 2.3.1 Taking a Bearing on a Map

Let's say you want to take a bearing from a starting point (A) to destination point (B). To do this, get your compass and topo map follow these steps:



1. **Align the compass** - Draw or imagine a straight line that runs from point A to point B. Place the compass on the map so that either edge of the baseplate is running along that line. Make sure that the 'Direction of Travel Arrow' is pointing in the direction you are travelling.
2. **Align the bezel** - Hold the 'Base Plate' in position on the map and turn the 'Compass Housing' so that the 'Orienting Arrow of the Housing' is pointing to North on the map (The lines inside the housing should be parallel with the grid lines on the map)
3. **Read the bearing** - Read the bearing on the rim of the housing as indicated by the index line – This is your map bearing.

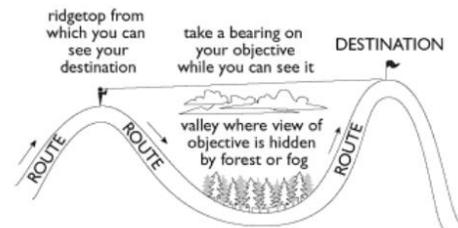
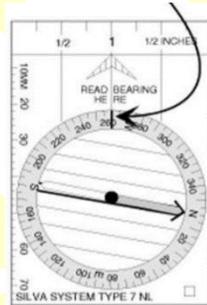


Figure 5: Following a compass bearing when the view of the objective is blocked by forest or fog.

## 3 Route Finding Skills

Route-finding is the task of formulating the most efficient route from the trailhead to the desired destination that is within the abilities of the hiking team without compromising the desired goals of the group. Circumnavigating a successful trip is a combination of intuition, luck, skill, and experience, but it is the latter two that you need most of all in order to traverse the hazards and hurdles you will encounter. Our navigation course goes through the skills needed to find your way, but a hardened backpacker must also rely on his or her ability to interpret the trail, rock, snow, and weather conditions both before and during their trip. This will allow them to skillfully travel over different types of terrain and decipher the clues that the wilderness presents. All of this starts in the beginning when you sit down to plan your route.

### 2.4 Navigating with Your Compass

Using a compass alone implies you have a good understanding of the landscape, but your vision of landmarks is temporarily obscured by obstacles such as dense trees. Let's say you are on the base of a climb up to a pass and from the base you can see the pass. But as you begin to ascend that move into dense forest and your view is now blocked. While at the base you can take a quick bearing to the pass. Now as you ascend with compass in hand, all you need to do is keep the magnetic needle aligned with the declination arrow.

In another scenario, let's say you're heading into a valley where the forest will block your view of the mountain you are trying to reach. Before you descend into the valley and you still have eyes on the destination, take a bearing to the peak. Then you can make your way through the valley following the bearing you took earlier. Follow these steps when navigating with just a compass.

1. **Situational Awareness** – While visually navigating, assess your route and identify when you will lose line of sight of your objective. Confirm your suspicion with the topo map.
2. **Identify your Landmark** – Scan the landscape and visually identify your objective.
3. **Take a Bearing** – Now that you have your landmark objective, use your compass to take a bearing to the landmark.
4. **Follow the Bearing** – After losing line of sight to your objective, follow the bearing taken by your compass.

### 3.1 Gather Route Information

In order to make the best-informed decisions about your route, you need to gather as much information about the route as you can. Try not to leave any stone unturned, do not assume anything, and leave no question unanswered. Each region you may want to explore will present its own set of challenges. Don't think because you have traversed through the high passes of Glacier National Park that you know what to expect on the high routes in Kings Canyon. There are a variety of sources to tap to gather your route information.

#### 3.1.1 Guidebooks

Guidebooks can offer a treasure trove of information about your route such as detailed descriptions of route, elevation gain and losses, distances, and estimated time of travel just to name a few. When looking for a guidebook make sure you are getting the latest edition. Information can become outdated and conditions can change. Check with the publisher's website to make sure you are getting the latest version. You may want to hold off if they are releasing a new version in a month or so.

#### 3.1.2 Online Resources

The internet is an amazing thing and can offer a bevy of resources to tap for information about your route. Lets quickly go over a few to help streamline your search.



### 3.1.2.1 Social Media Groups

Social media groups and chat rooms can offer a channel to large groups of people who have experience in the area you want to go. Search for groups about backpacking and hiking and pose your questions there. Facebook offers many groups, and most people are very willing to help you with your concerns.

### 3.1.2.2 Trail Specific Websites

Large through trails such as the John Muir Trail (JMT) and the Pacific Crest Trail (PCT) have websites specific to them that have been created and maintained by fellow enthusiasts. They can offer up to date information about trail conditions and local resources that can help with your trip. You can also find a lot of information through National Park and National Forest websites.

### 3.1.2.3 Google Earth

Google Earth ([www.google.com/earth](http://www.google.com/earth)) can give invaluable three dimensional views of landscape from any chosen vantage point. I would recommend downloading the Google Earth Pro version to your laptop, as it offers many more tools such as fly overs and GPS data that you can download.

### 3.1.2.4 Hiking & Backpacking Applications

There are a few hiking and backpacking software applications that offer a variety of sources to help you research routes and adventure locations. They can offer digital maps and electronic GPS data files that can be used to program your GPS enabled devices. Here are some of the most popular apps:

- All Trails – [www.alltrails.com](http://www.alltrails.com)
- The Hiking Project – [www.hikingproject.com](http://www.hikingproject.com)
- Gaia GPS – [www.gaiagps.com](http://www.gaiagps.com)

### 3.1.3 Topo & Trail Maps

Topographic and trail maps offer a ton of useful information and details. They also give your mind a change to take in the layout of the land. Most of the National Parks & Forests have a National Geographic Trails Illustrated map associated with them which are at the time of this lecture are the best map source on the market. These maps are thoroughly researched and vetted by park managers to provide complete and accurate locations of trails and facilities. A full list of these maps and USGS Topographic maps can be found here:

- National Geographic Maps – [www.natgeomaps.com](http://www.natgeomaps.com)
- USGS Topographic Maps – <https://store.usgs.gov/>

### 3.1.4 Chat with Those Who Know

Reach out to local rangers and land managers and pose your questions to them. Ask about current conditions and weather as well as any trail closures affecting your route. Be friendly and milk them for info. Also reach out to locals. Once you arrive in the area check out the local outfitter or gear store and chat with employees. You would be amazed what you will find out from these casual conversations.

## 3.2 Study the Map

Studying the map will help you to identify key features that will assist you in finding your way.

### 3.2.1 Identify Terrain Changes & Landmarks

Take a look at your map and try to identify where the terrain will significantly change. This can be areas where it goes from forest covered to open areas with no trees or going from heavy vegetation to dry and rocky. It can also be as simple as a major turn in the trail. Once you have identified this you will be able to correlate that to what you are seeing on the ground.

Landmarks are also key to helping you pinpoint your location. This can be in the form of a building, road, river, mountain peak, waterfall, etc.

### 3.2.2 Identify Handrails & Baselines

Any linear feature that parallels the direction of travel that can be identified on the map is called a **handrail**. Basically, once identified, this feature can act as a navigational aid to keep the group on course. In order for the handrail to serve its purpose, it needs to be in frequent sight of the route. Features that can act as handrails include but not limited to roads, powerlines, trails, railroad tracks, fences, borders of meadows or tree lines, valleys, streams, ridgelines, and lakeshores.

A long and easily identified line feature that always lies in the same direction from the team and is always reachable no matter where the team is located is known as a **baseline**. It provides a key navigational technique that acts as a beacon that a team can follow in case of getting lost or off track. A baseline can be a road, a large lakeshore, a river, a powerline, or ridgeline as long as it spans the entire length of the area the group will be travelling in. Lets say that a major river flows through the area in which you will travel and lies to the east. If at any time during the trip, the team gets lost, they can always head east until they hit the river and then they can follow it out.

### 3.2.3 Anticipate Routefinding Hazards

Do your best to identify any hazards on your route and anticipate any problems. For example, see if you can identify any areas where there may be ice on the trail. If so you may consider bringing some form of traction in order to keep from slipping. You may also identify certain river crossings or streams to ford. You may prepare for this by bringing special footwear or waterproofing your pack.

## 3.3 Build your Experience

Start small and work your way up. In the beginning reach out to more experienced backpackers and ask for advice. Learn what you can (such as taking this course 😊). Ask to tag along on group trips with more seasoned backpackers. Watch what they do and learn from there techniques. Don't be afraid to ask questions when on the trail. Start with smaller trips close to home and then begin to branch out.



## 3.4 Develop your Situational Awareness

Backpack with your eyes open and continually study the landscape and features. Look for possible campsites, new routes, or good places to take a break that offer shade and a place to sit. As you travel, look for prominent landmarks that you can correlate to your map that will indicate you are where you are supposed to be.

Be mindful of your pace and timing. Always be aware of the time and how much distance you need to travel to your destination. You want to arrive with enough time in the day to set up camp before you lose sunlight.

## 3.5 Watch and Listen for Hazards

It can be dangerous out there so always keep your eyes and ears open. Look for things that may pose danger such as loose footing or rotting trees overhead. Also look for spots that may confuse travelers such as a junction in the trail or a tricky creek crossing. If you are unsure pull out your compass, map and GPS and confirm your heading. Keep your ears open as well. Listen for rushing water, cracking rocks, or animal noises that may pose a threat such as bears and mountain lions.

Also keep your eyes on the horizon and watch for changes in weather. Weather can change in a short period of time and learning to judge and somewhat predict conditions will come over time. Always be prepared for any weather you may encounter.

## 3.6 Trail Finding

For a wilderness traveler, a “trail” is any visible route (no matter how ragged) that can effectively and efficiently get your team where you want to go. Your mission here is to find the easiest route using the tools that are available to you:

1. Awareness of the terrain (based on your map study)
2. Navigational skills
3. Weather conditions
4. Tips from guidebooks and experts

Even in well-traveled areas that have heavy foot traffic and well labeled signs, you need to keep alert and maintain your situational awareness to find and stay on the trail. It is very possible to miss a turnoff if a sign is gone or misleading or if logging, erosion, an avalanche, treefall, or rockfall decimates the trail. On an established forest trail in deep snow or through a lot of woody debris, saw-cut log ends peeking through may be the only indication of a trail’s location.

Old blazes cut in tree trunks, or surveyors’ ribbon tied to branches, often mark the trail through a forest. Rock cairns (piles of rocks placed along the route as markers where the path is not obvious) may show the way above the timberline. These pointers can be unreliable. A tiny cairn or a wisp of ribbon may indicate nothing more than a lost hiker, a route to an alternate destination, or an old route that has since been obstructed by rockfall. Remember your Navigation skills and use them. If you are unfamiliar with navigating, then take a look at our “Backcountry Navigation” course.

### 3.6.1 Trail Finding Strategy

In order to navigate a lost trail or a trail that is no longer visible follow this strategy to blaze on ahead:

1. **Stay on the Trail as Long as Possible** – Stay on the trail until the inevitable moment it disappears or until it becomes necessary to head off trail in order to go in the right direction.
2. **Look for Trail Signs** – Scan the area for possible signs that could indicate a trail is there such as cut timber, a clearing through the brush, footprints, or trail blazes.
3. **Find the Path of Least Resistance** – Choose a course that a trail would follow if there were a trail. Trail builders look for the easiest way to go. Do as they do.
4. **Confirm with Map** – Ensure that the way you are heading is in the correct direction of travel to your destination.

## 4 Shopping List for Level 2

For our level 2 course you will be taking on your first real day hike in the backcountry. You need to be prepared with your 10 essentials and good hiking boots and socks. I highly recommend taking our Masterclass on Outdoor Clothing at <https://acadianxu.com>.

1. Hiking Boots (preferably waterproof)
2. Hiking Socks
3. Compass
4. Backpack
5. First Aid Kit
6. Knife
7. Headlamp
8. Fire Kit
9. Any other 10 Essential Items

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