

Backcountry Camping and Basic Survival Skills

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SPLASH

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Agenda

- **Motivation for Backpacking**
- **Preparation**
 - Planning your route
 - Preparing equipment, food, and supplies
 - Letting others know where you're going!!!!
- **During your Trip**
 - Hiking
 - Navigating
 - Finding water

Motivation



Bottom of the Grand Canyon

- Takes one day to reach the bottom
- Great places to camp
- Many people have died trying to hike down and back in one day!

Motivation



Goddard Canyon – Sequoia/Kings Canyon National Park

- Takes two days to reach this unnamed lake
- Excellent fishing, beautiful scenery, tons of wildlife

Motivation



Cerro Del Plomo – 17,800 feet - Chile

- Reaching high peaks generally requires a series of base camps
- Base camps used to split large distance and adjust to altitude

Motivation



Grand Canyon of the Tuolumne River – Yosemite, CA

- Spectacular canyon in Yosemite
- Rivals the main valley
- Requires multi-day travel

Motivation



See Wildlife in Natural Habitat

- Easy to find bears eating berries or looking for fish away from campgrounds

Motivation

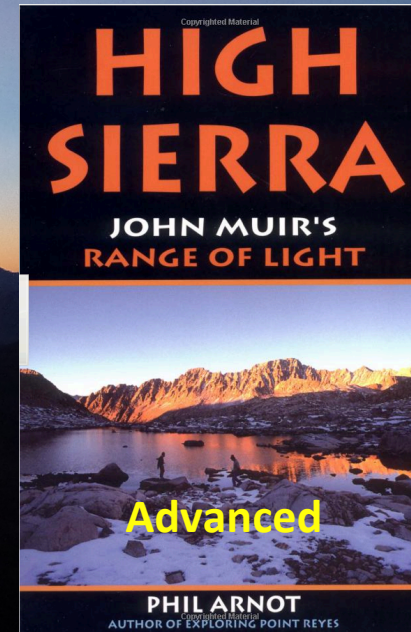
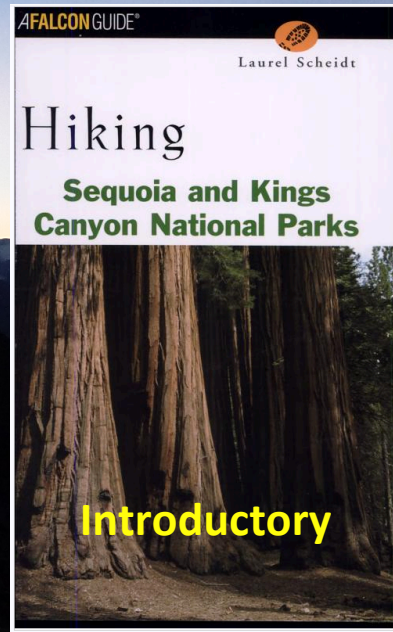
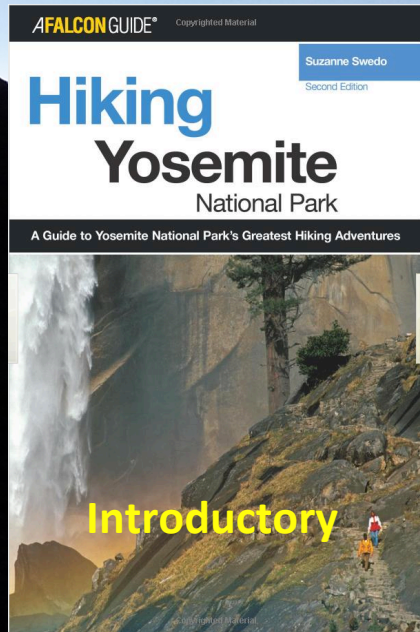


You don't have to deal with this!!

- Loud, obnoxious campgrounds don't exist in the backcountry
- No lights means pitch-black skies perfect for viewing stars

Preparation – Route Planning

- Research the area you want to explore
- There are some great books out there (e.g. Sierra Nevadas)



Start out with an easy route

- A 1 or 2 night, out-and-back trip is a good start
- Book will give you low detail map, but you need more

Preparation – Route Planning

Once you've picked a route, get detailed maps

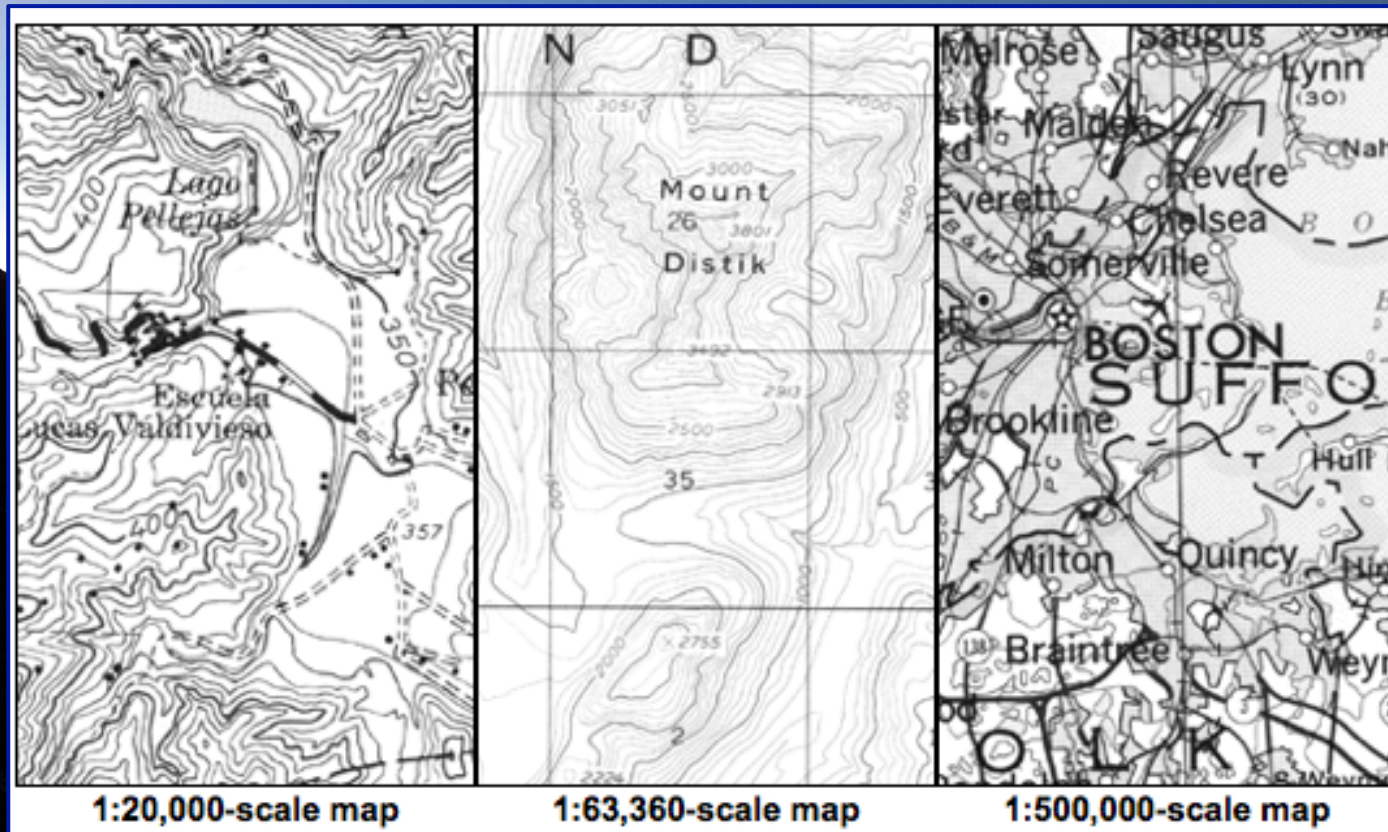


GPS vs. Map

- Having a GPS is great, but make sure you always bring a waterproof map
- If you have GPS, download route and waypoints for your trip before leaving

Preparation – Route Planning

Make sure your map is detailed enough



- Scale on map is ratio of map units to real units
- E.g. 1:20,000 means 1 inch corresponds to 20,000 inches ~1670 feet
- For backpacking, 1:24,000 is usually adequate

Preparation – Route Planning

The **key question** is: *How long will it take?*

For hikers that

- 1) are in decent physical shape
- 2) carry a pack that is about 20% of their body weight

... the rule of thumb is



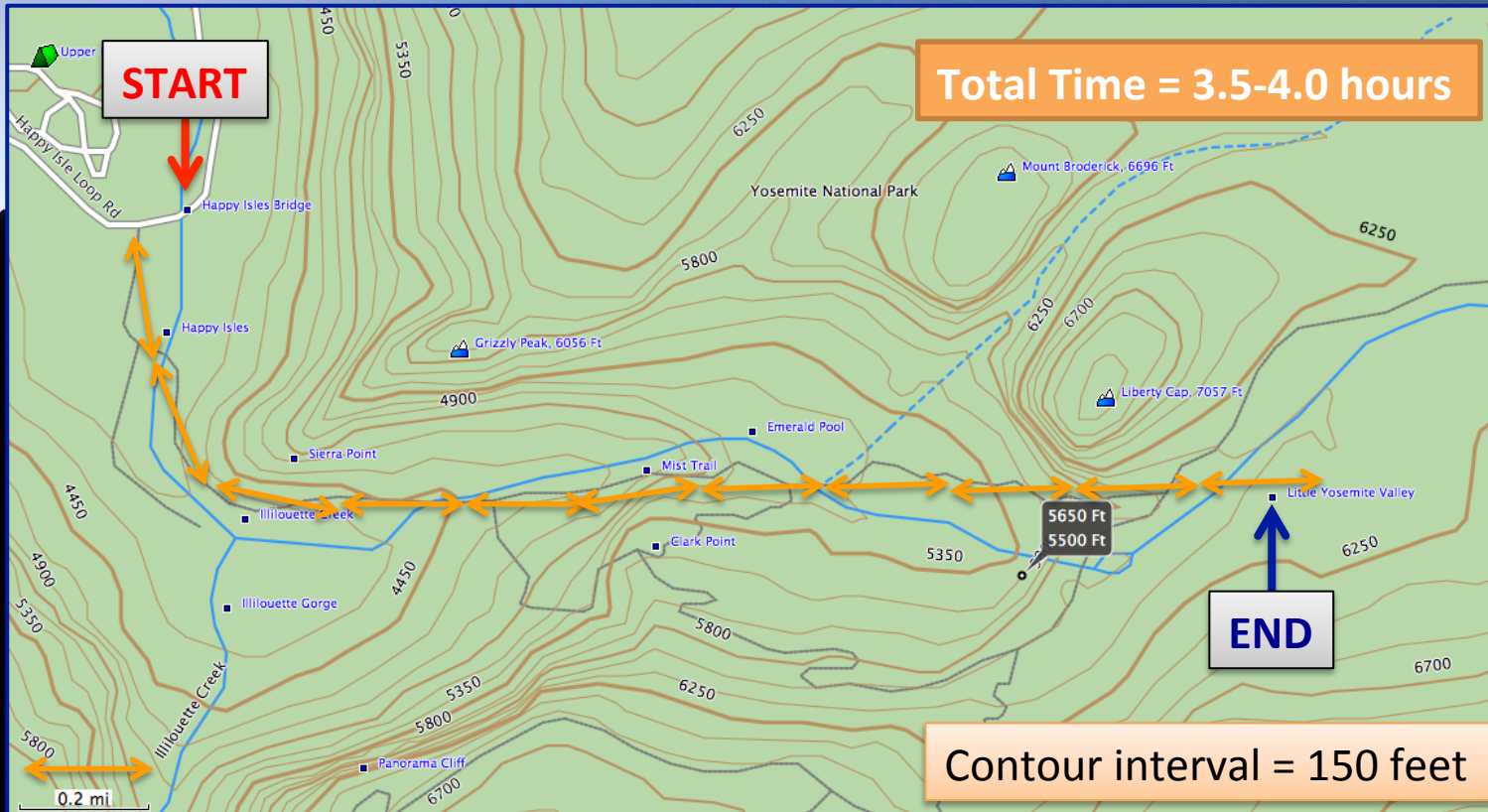
It will take about

- 1 hour for every 2-3 miles hiked on flat ground
- 1 hour for every 1000 feet of elevation gain

- Add time for bathroom breaks, etc. (more people means more breaks)
- Take lunch and snack breaks into consideration
- Taking your pack off for 5-10 minutes an hour is a good idea
- Take the weather into consideration. Snow slows you down; so does heat.
- Where will you set up camp each night? We'll talk about this later.
- When dealing with elevations above 8000 feet or so, you have to factor in the possibility of elevation sickness (will talk about this later)

Preparation – Route Planning

Let's do an example



- Total horizontal distance is about 2.4-3.0 miles -> +1.0 hour
- Total elevation gain is about 2200 feet -> +2.0 hours
- Time for pictures and bathroom breaks -> +0.5 hours

Preparation – Gear: Backpack

First thing you'll need is a backpack to carry all your stuff



Two Main Types: **Internal Frame & External Frame**

I'd recommend internal frame packs since they generally have more volume

Preparation – Gear: Backpack

One size does not fit all!!



- Make sure you are fit properly when buying a backpack
- I generally use an 80 Liter pack, smaller people may use 50 or 60 Liter

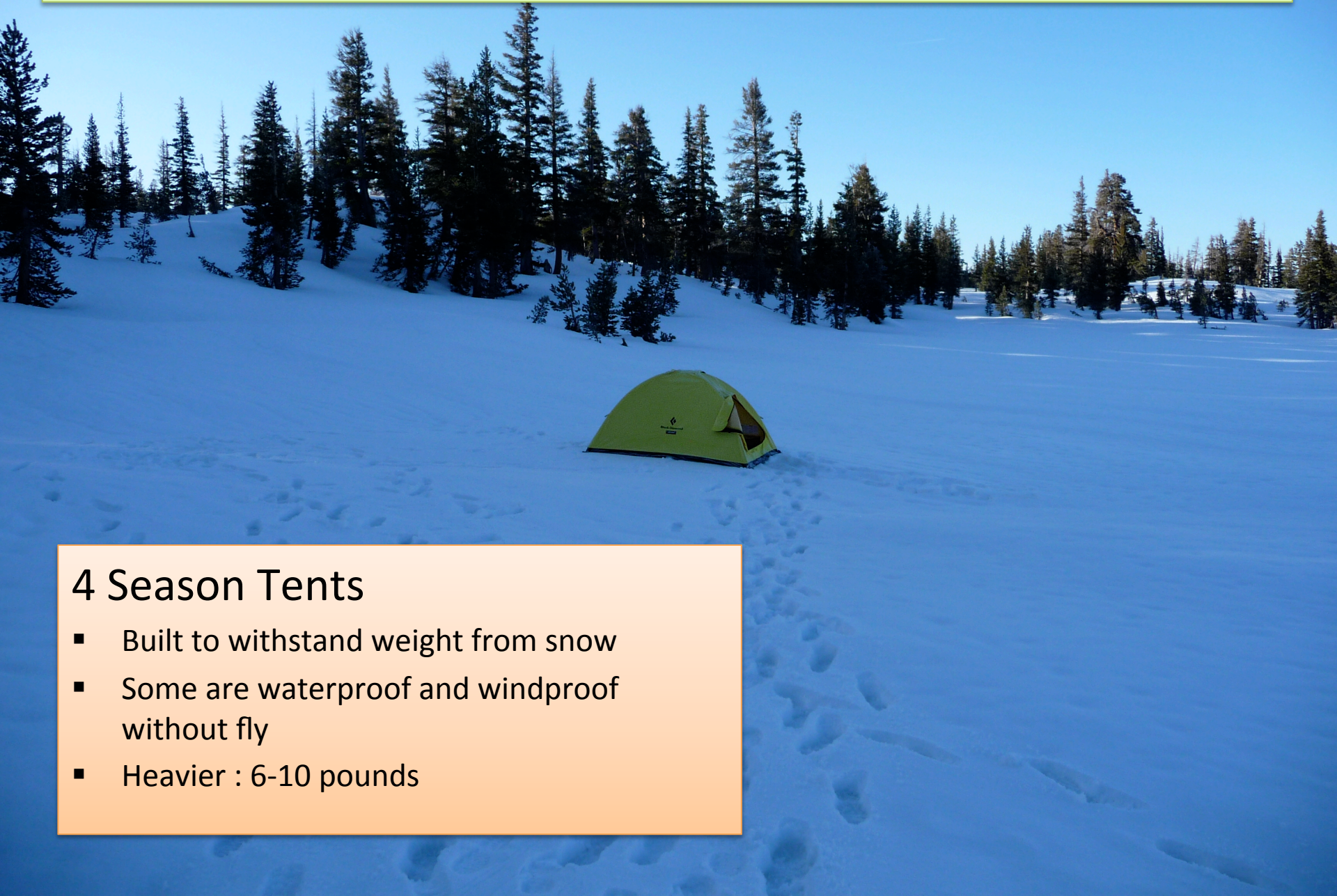
Preparation – Gear: Tent

3 Season Tents

- Appropriate for most camping except winter (heavy snow & winds)
- Waterproof fly covers tent in case of rain and wind
- As light as 3 pounds!



Preparation – Gear: Tent



4 Season Tents

- Built to withstand weight from snow
- Some are waterproof and windproof without fly
- Heavier : 6-10 pounds

Preparation – Gear: Tent

Some people forego the tent and use a *Bivy Sack*



Advantages

- Lightweight
- Compact in your bag
- Aerodynamic in wind

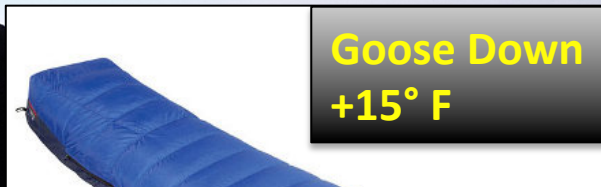
Disadvantages

- Small, tight squeeze
- Can't cook inside it
- Not the best place to hold up in bad weather

Preparation – Gear: Sleeping Bag

Your sleeping bag is one of the most important pieces of equipment you'll be carrying

Two Main Types: **Goose Down & Synthetic Fiber**



Goose Down
+15° F



Synthetic
+20° F

Make sure you hang your sleeping bag or lay it flat when you store it

Leaving it rolled up will ruin its loft, which is what keeps you warm



- Warmer oz. for oz.
- Very Compact
- Breathable
- Does not work when wet

- Works when wet
- Dries quickly
- Heavier
- Not compact

Preparation – Gear: Sleeping Pad

A sleeping pad is for more than just comfort



Your Sleeping Pad:

- Provides insulation between you and the ground
- Comes in inflatable and non-inflatable flavors
- Thin, light weight ones are available, but can puncture easily
- If sleeping on snow, it is absolutely necessary!

Survival Tip:

If your sleeping pad punctures or you don't have one and the ground is cold, make a bed of pine needles, leaves, ferns, etc. to prevent heat loss

Preparation – Gear: Bear Canister

Bears are extremely crafty and food needs protection



Some parks require canisters

- Can generally be rented at trailhead
- Slightly heavy, but better than hanging your food in a tree
- Makes a good seat

Preparation – Gear: Footwear

Your feet are the most important part of your body on a long hike
People have different philosophies when it comes to shoes

Running/Tennis Shoes

Pros

- Flexible soles allow your foot to achieve normal range of motion
- Rarely cause blisters if broken-in
- Very breathable*

Cons

- Poor ankle support
- May be shredded by harsh terrain
- Not very protective against rocks and debris on trail
- Not waterproof



* Wet feet are the primary cause of blisters. Take off your shoes before crossing rivers

Preparation – Gear: Footwear

Your feet are the most important part of your body on a long hike
People have different philosophies when it comes to shoes

Hiking Boots

Pros

- Stiff soles prevent things from poking the bottom of your foot
- Good ankle support
- Warmth

Cons

- Not breathable
- Stiff soles can prevent your foot from taking natural shape
- Some boots are heavy
- Certain kinds cause blisters*



* Breaking in boots will reduce or eliminate blisters in most cases, but not all

Preparation – Gear: Footwear

Your feet are the most important part of your body on a long hike
People have different philosophies when it comes to shoes



These types of boots are good in constant snow

Preparation – Gear: Socks

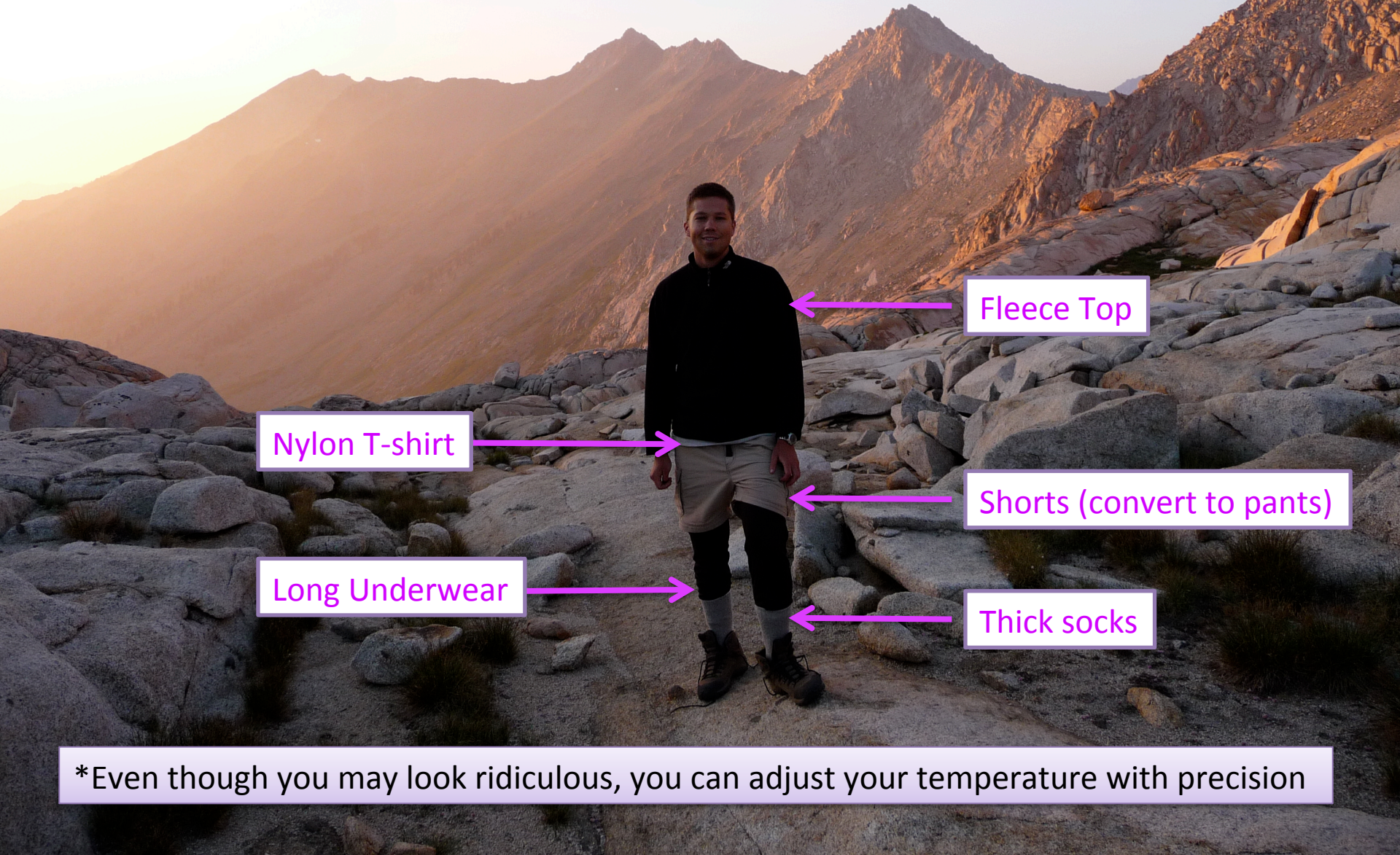
Avoid cotton, avoid cotton, avoid cotton



- Wool or synthetic socks are good
- Thickness and cushioning vary from sock to sock
- Good idea to bring thin socks for hiking during day and thick socks for night
- Always bring an extra pair in case one gets wet or torn
- Stop immediately if something gets trapped in your sock and remove it to prevent blisters

Preparation – Gear: Clothes

Layers, layers, layers*. Oh, and avoid cotton.



*Even though you may look ridiculous, you can adjust your temperature with precision

Preparation – Gear: Clothes

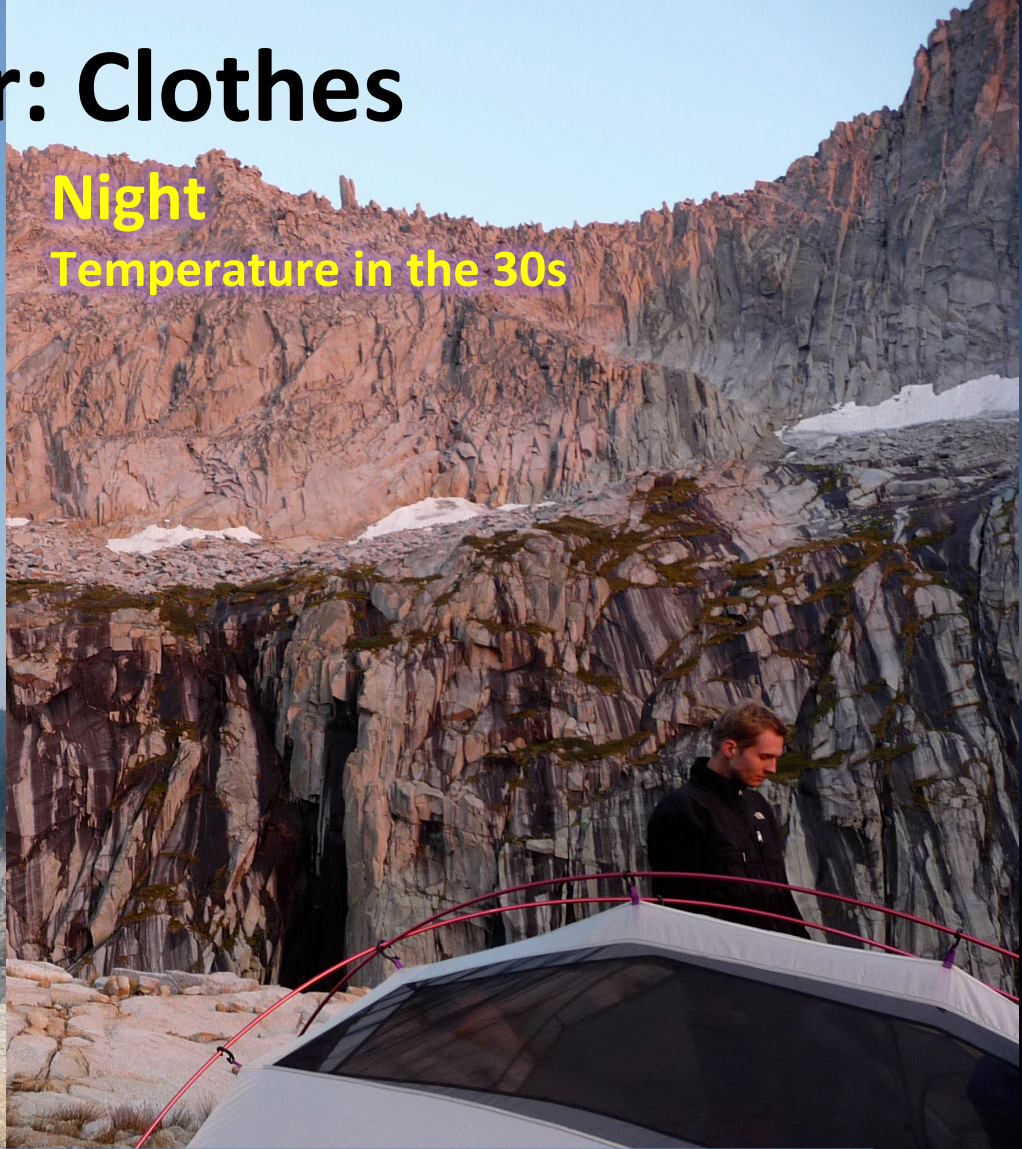
Day

Temperature in the 80s-90s



Night

Temperature in the 30s



- Even in the summer you will need a heavy layer when temperatures drop at night
- Especially important if fires are not allowed or there is no wood to burn
- In many cases, you'll want a ski cap and gloves

Preparation – Gear: Clothes

Protect yourself from
wind and rain with a
waterproof shell

Also a good idea to
bring waterproof
pants



Preparation – Gear: Stove, Pot, Spork

Stove is great for cooking, boiling, and warming up without a fire



My favorite stove is the *Snow Peak GigaPower*.

Preparation – Gear: Light Source

Nothing really beats a headlamp, but any flashlight will do



Very convenient, but easily breakable

- LED lamps provide many hours of light with one battery
- Extremely convenient for cooking, setting up a tent, collecting firewood, etc.
- Make sure it's not easily breakable like the one above

Preparation – Gear: Sun Protection

Sunglasses, lip balm, sunscreen, and a hat



Polarized Lenses

- Superior to unpolarized
- Block light reflected off water or snow

Sure, you'll survive without these things...but you'll be absolutely miserable

Preparation – Gear: Water Purification

A number of options are available



**MSR Miniworks
Ceramic filter***

**Iodine Tablets or
Drops of bleach**



UV Sterilization Pen

Survival Tip:

Some old timers (or hippies) may tell you it's not necessary.
A filter can be improvised with some leftover charcoal from a fire.
But I'll tell you from experience, you don't want to take the chance.
Stuff the charcoal down a hollow tube (bamboo, tent pole) and use as a straw.

*** This only treats for parasites and bacteria, not viruses. Good for USA, but not for some parts of South America, Africa, etc.**

Preparation – Gear: First Aid Kit

Can make the difference between misery and enjoyment

First Aid Kit Contents

- A roll of gauze
- Medical tape
- Triple Antibiotic ointment
- Bandages w/Adhesive
- Ibuprofen or Advil
- Moleskin (for blisters)
- Iodine or alcohol-based disinfecting wipe
- Safety pin
- Medications



My first aid kit has come in handy on almost every single trip I've taken

Preparation – Gear: Knife

A Swiss-Army Knife or Leatherman is extremely useful



Primary blade, saw, scissors, and can opener are particularly useful

You can also get a badass knife like Bear Grylls, but chances are you'll rarely need a heavy-duty blade like his unless you're building rafts or making your own shelter

Preparation – Gear: Other Essentials

Always Essential

Lighter – For starting fires

Matches in waterproof container – In case lighter fails

Map – Absolutely essential, even if you're hiking on a well used-trail with signs

Compass – Durable so that it can take a beating, liquid bearing is nice

Whistle – In case you're lost and need to call for help

Duct Tape – Tear off a few feet and roll it around your match case or something

TP – In addition to the obvious, it can be a lifesaver for lighting a fire when it's wet

Watch – You ought to know the time. If possible, get one with an altimeter!

Essential if conditions are right

Bug Repellant – You'll be in agony without it in July or August in the Sierras

Snake Bite Kit – If poisonous snakes are in the area

50' Feet of Rope – If you plan on going off trail, it can be used for fording rivers or lowering yourself down ledges

Preparation – Gear: Survival Kit

Whenever you venture out into the wilderness, a survival kit could be a lifesaver

Survival Kit Contents

Flint and Striker – For starting fires with a spark (difficult without good kindling)

Candle – Made of tallow (fat), can be eaten in case of starvation

Snare Wire – For setting snare traps to catch rabbits

Needle and thread – Stitching clothes, wounds

Magnifying glass – Starting fires, and finding splinters, stings

Flexible Saws – Can be used to cut trees or lumber

Fish hooks and line – Used to catch fish, add a few split shots for weight

For a good explanation of how to use all these things, see the book
SAS : Survival Handbook by John “Lofty” Wiseman

Preparation – Food

The food you bring will be a matter of personal preference, but there are a few smart rules to follow

Rule 1*:

Avoid foods that contain water. It's just extra weight.

Examples: Apples, carrots, oranges...most fresh fruits and vegetables

Rule 2*:

Avoid foods that spoil or bruise easily

Examples: Bananas, yogurt, steak, certain kinds of cheeses

Rule 3:

For long trips, try to maximize calories per unit volume

Food with lots of air space in it can be traded for its denser counterparts

Examples: Tortillas instead of bread, oats instead of granola, white rice instead of brown

*For 1-2 day trips, it can be fun to bring hot dogs, steaks, etc.

Preparation – Food – Example

Breakfast: Oatmeal, dried blueberries, almonds

Morning Snack: Powerbar

Lunch: Peanut butter and honey on tortillas, trail mix, cliff bar

Afternoon Snack: Protein bar

Dinner: Rice with dried vegetables, a pack of tuna (aluminum bag, not can), chamomile tea, more trail mix

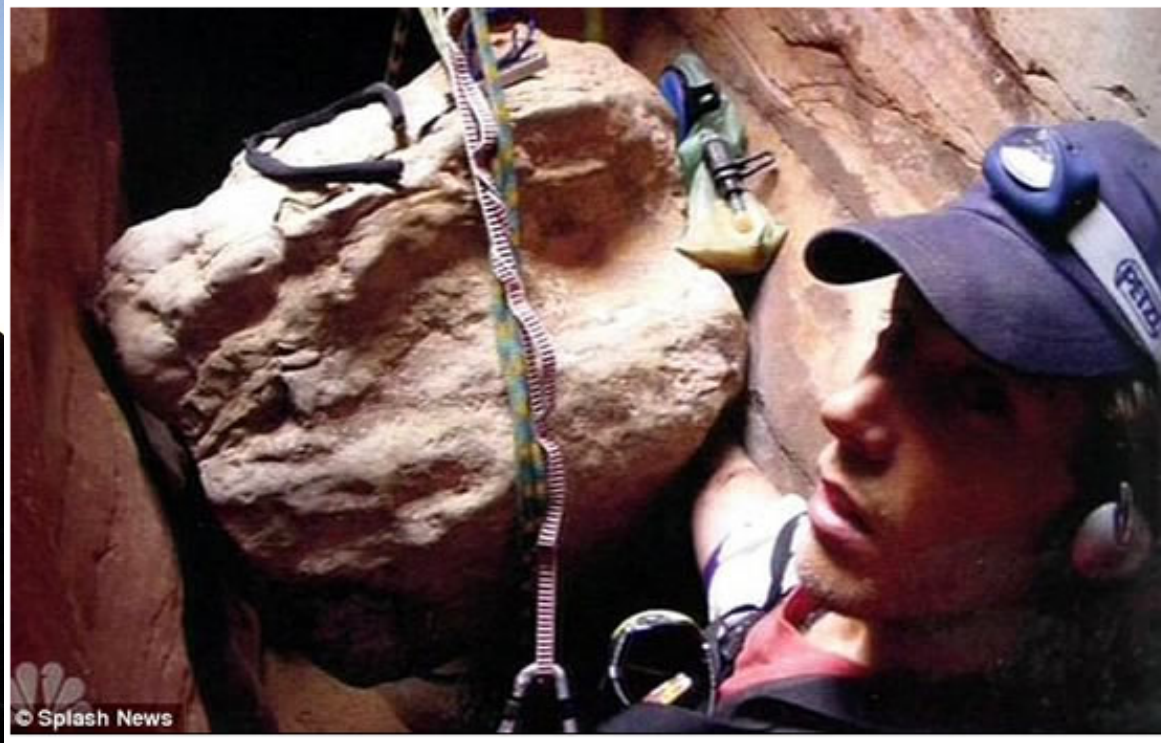
It may not sound appealing now, but after a long day of hiking everything tastes excellent

With a meal plan like this, a bear canister can carry about 8 days worth of food

It's about 2500-3000 calories a day. You will lose weight on a trip.

Preparation – The Most Important Item!

Tell someone where you're going!!!!!!!!!!



- #1) Tell your parents where you're going and when you'll be back**
- #2) Stick by your plan. Don't change it!**
- #3) Your parents will get a rescue going if you're not back on time. As long as you stay your course, someone will find you.**

Hiking – General Tips

You're all ready to go now.

Here are some tips:

- 1) Don't rush the slowest person in your group.
- 2) Sweating and heavy breathing are ok, but nausea and light-headedness are not
- 3) If you think you won't be able to cross a river without getting your boots wet, take them off and cross
- 4) Take off your shoes as often as possible (at lunch, breaks, etc.) to avoid blisters
- 5) If you get anything caught inside your shoe, stop and take it out. It will contribute to blisters



Hiking – Elevation Changes

As you go up in elevation, 3 easily noticeable things happen

- 1) The air becomes thinner and it gets harder to breathe**
- 2) The temperature drops about 3.5°F for every 1000 feet**
- 3) The vegetation disappears, so there's no shade**

Take this into consideration when you're hiking

Hiking 5 miles from 4000 feet above sea level to 7000 feet in one day may not be that hard

Hiking 5 miles from 9000 feet above sea level to 12000 feet will be much harder

Don't get too high on the first day

Your body needs time to adjust. So try to sleep at 8000 feet or so before attempting to go above 10,000 feet

There's no way to know how you will react to elevation

Everybody is different, the only way to find out is to try.

Hiking – Elevation Sickness

Elevation sickness has many different symptoms

- Dizziness, faintness, upset stomach, shortness of breath, pins and needle sensation, nosebleed, and the list goes on

There's only one cure that works for sure

GO DOWN

Hiking – Predicting the Weather

Hiking in mild rain or snow is very pleasant, but lightning can kill

You can use your altimeter to predict weather

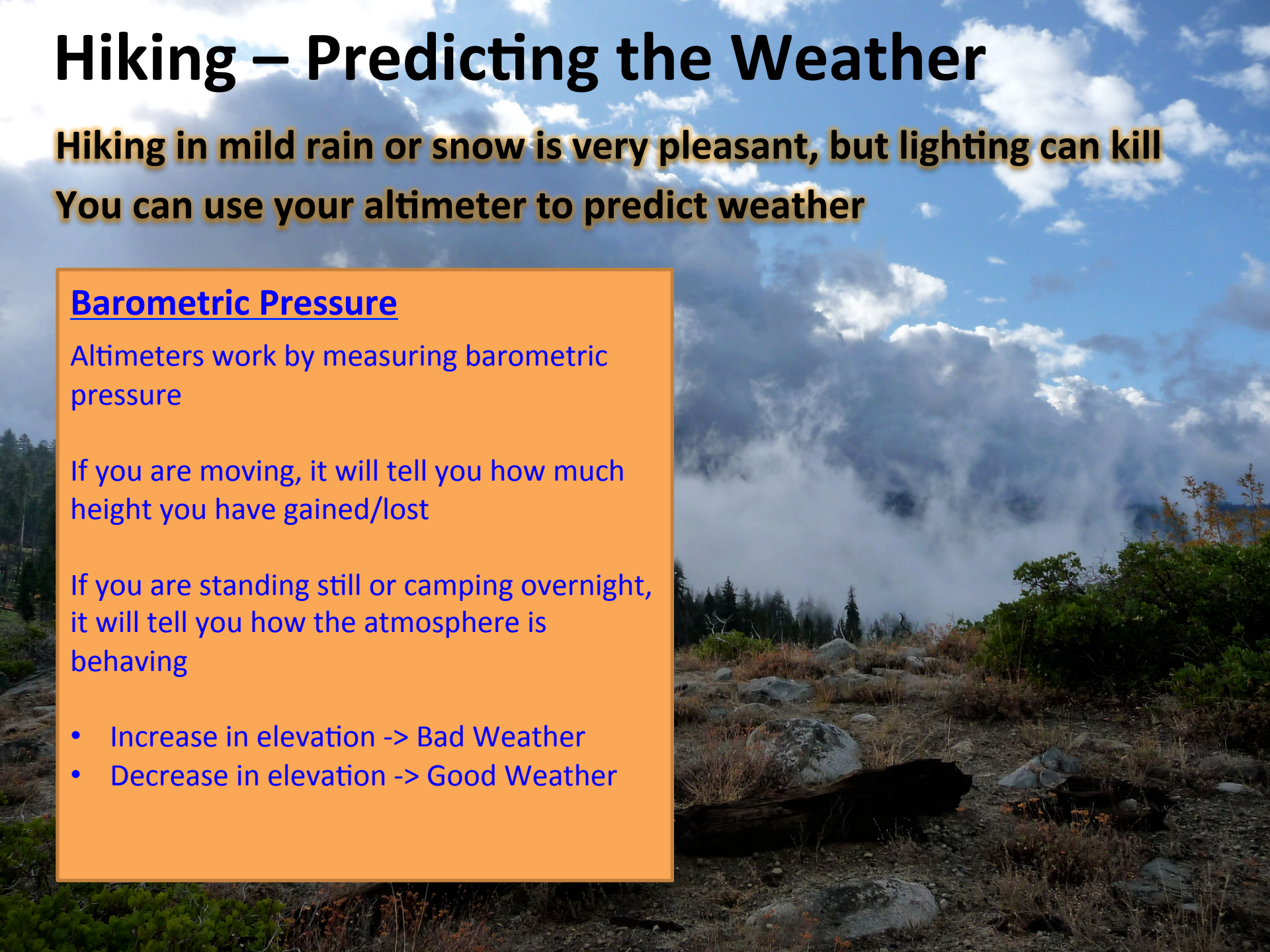
Barometric Pressure

Altimeters work by measuring barometric pressure

If you are moving, it will tell you how much height you have gained/lost

If you are standing still or camping overnight, it will tell you how the atmosphere is behaving

- Increase in elevation -> Bad Weather
- Decrease in elevation -> Good Weather



Hiking – Predicting the Weather

Clouds and wind direction are also a good indication of the coming weather



Cumulus Clouds

Low, puffy clouds.

Generally a sign of good weather unless they start gathering in big towers

Then they become cumulonimbus, which bring storms and hail

Hiking – Predicting the Weather

Clouds and wind direction are also a good indication of the coming weather



Cirrus Clouds

High, wispy clouds

Usually seen in fine weather. If sky above them darkens, rain may be on the way

If you can see a halo from the sun or moon, good weather is coming if it's getting bigger, bad if it's getting smaller

Hiking – Predicting the Weather

Clouds and wind direction are also a good indication of the coming weather



Stratus

Flat, sheet of clouds covering most of sky

Generally bring light rain or drizzle

If low enough, they form fog

Hiking – Predicting the Weather

Clouds and wind direction are also a good indication of the coming weather

Wind Direction

These guidelines are not 100% true, but they're a good bet. If the wind is from the

North: Cold weather coming

South: Warm weather coming

East: Rain is coming

West: Fair weather is coming

Notes:

1) This is for the Northern Hemisphere

2) In rugged terrain, wind direction is mainly due to thermal stabilization currents, so may not be applicable

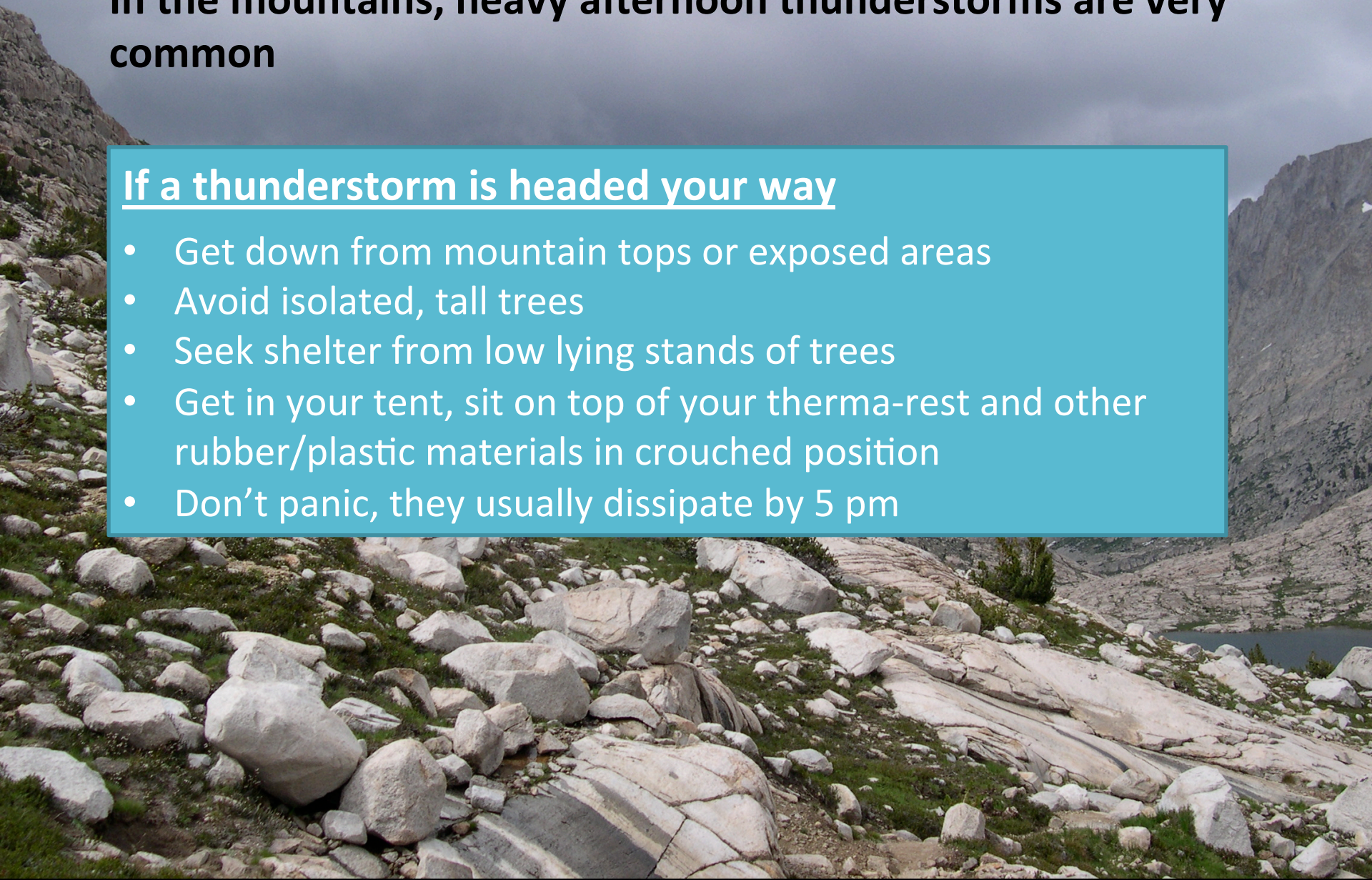


Hiking – Dealing with the Weather

In the mountains, heavy afternoon thunderstorms are very common

If a thunderstorm is headed your way

- Get down from mountain tops or exposed areas
- Avoid isolated, tall trees
- Seek shelter from low lying stands of trees
- Get in your tent, sit on top of your therm-a-rest and other rubber/plastic materials in crouched position
- Don't panic, they usually dissipate by 5 pm



Navigating – With GPS

Finding your way with a GPS is very straightforward, but beware of signal loss in canyons or blockage from mountains



GPS built for the trail

- Load waypoints for your route before leaving
- Set waypoints as you go so you can backtrack in case you get lost

Navigating – Without GPS

Baseplate Compass

- Can be used with a map to triangulate your position
- Can be used to steer you on the right course once you have a bearing
- Having an altimeter helps



Navigating – Triangulation

230°

270°

Step 1: Put your compass down on the ground and orient the dial so 0° is at north

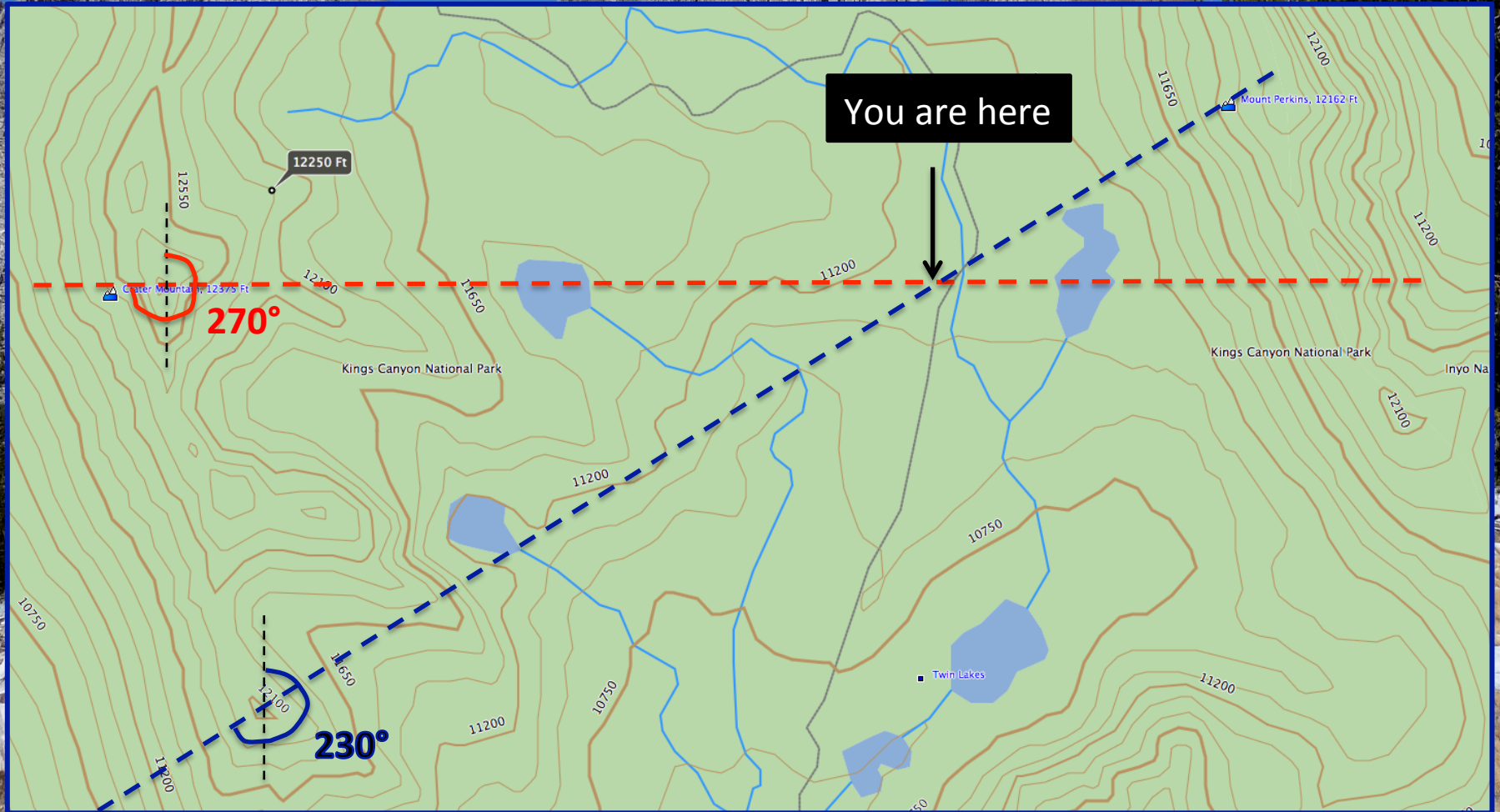
Step 2: Take the bearings of at least two prominent peaks or landmarks

Step 3: Draw lines on your map with these bearings. Where they intersect is where you are

Navigating – Triangulation

230°

270°



Finding Water

Try to plan your campsites around lakes or rivers

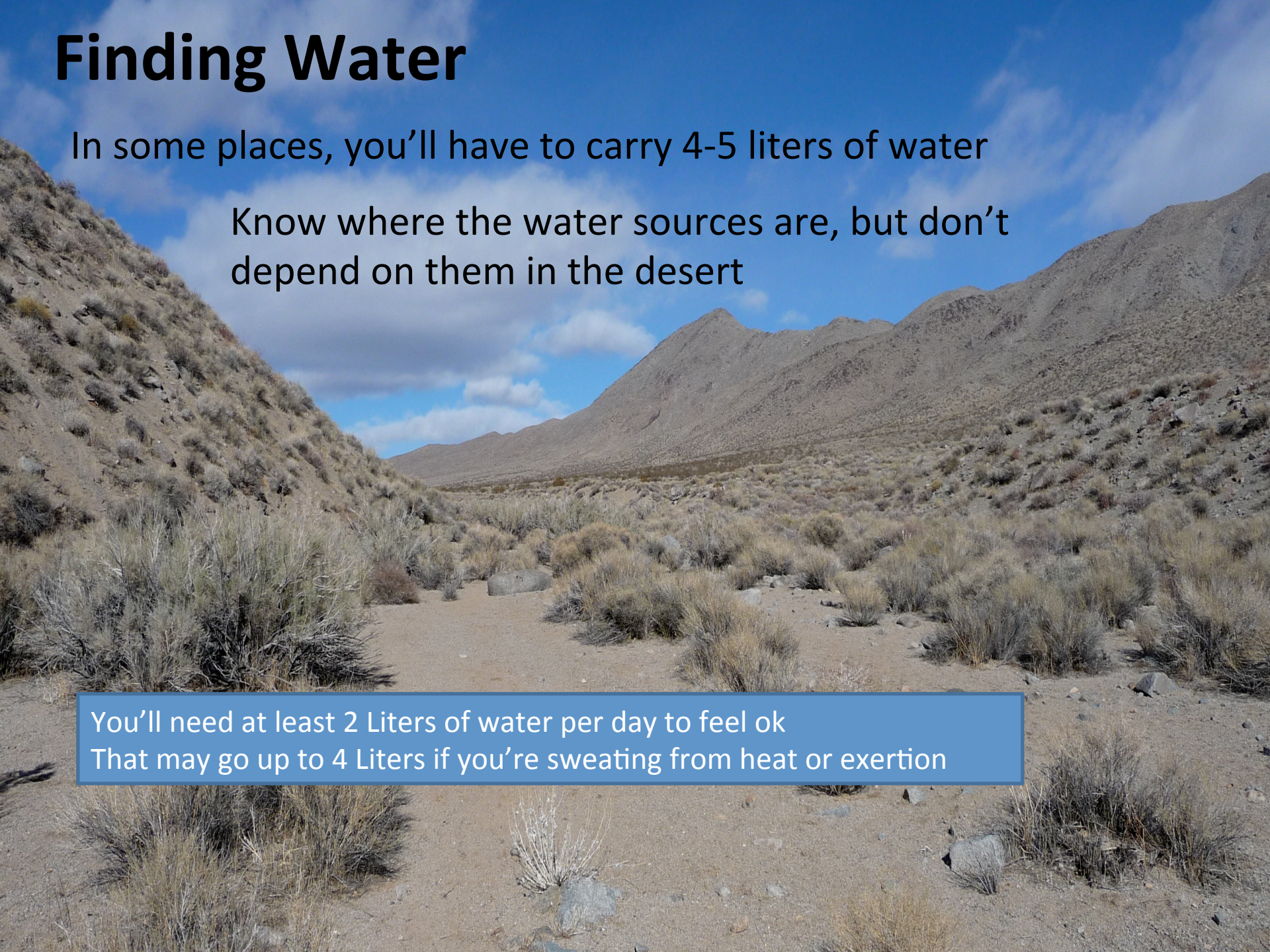
Be aware that some water sites are seasonal.
They have water during the winter, but dry up during the summer

Finding Water

In some places, you'll have to carry 4-5 liters of water

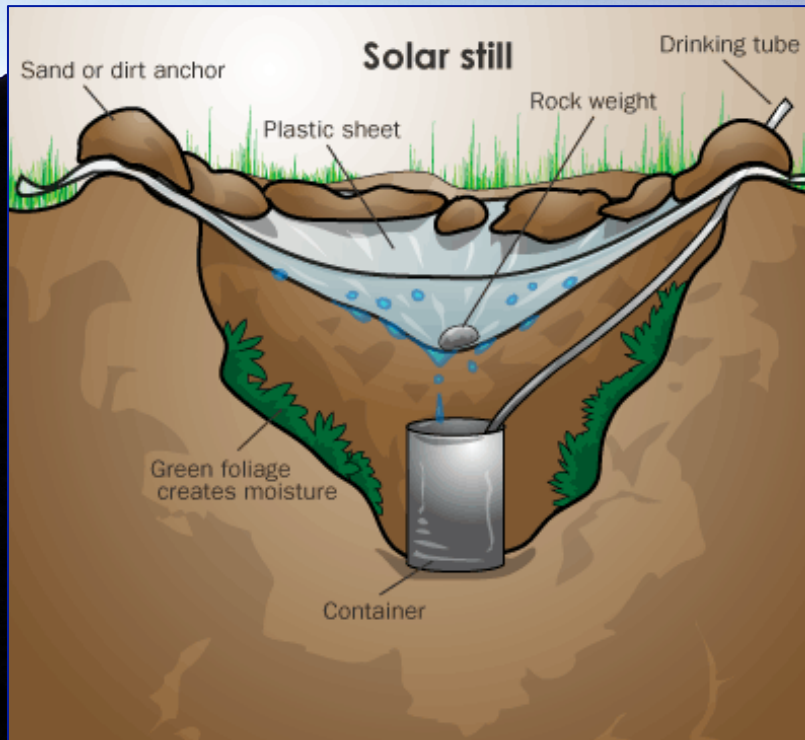
Know where the water sources are, but don't depend on them in the desert

You'll need at least 2 Liters of water per day to feel ok
That may go up to 4 Liters if you're sweating from heat or exertion



Finding Water – Survival Situation

If you are desperate, there are a number of ways to obtain water from the ground or air



**Plastic bag wrapped
around tree
branch**

Solar Still

Or you can dig at the bottom of a canyon where vegetation is present

Finding Food

There are many, many things that can be eaten all around us

Some involve a good deal of preparation

Take a class on edible plants to find out what's good!



Miner's Lettuce

A favorite food that can
be found in Northern
California wilderness

Ending Notes

- **Backpacking allows you to reach some amazing places**
- **You must be prepared to deal with normal circumstances as well as bad weather and first aid emergencies**
- **Always tell someone where you and your group are going!**
- **If you feel like you have elevation sickness, go down!**