



[www.caves.org](http://www.caves.org)

# **Caving Equipment**

## **A Discussion for Youth Group Leaders and Parents**

Prepared by the  
National Speleological Society Youth Groups Liaison Committee  
with thanks to the Girl Scouts of the Virginia Skyline Council  
Adventurers Program

### **Introduction**

Caving is not simply a walk in the dark. Caves are dark enough that you literally cannot see your hand in front of your face, much less a 100-foot pit in the path ahead. Caves can be wet and cold, and sometimes a chilling breeze blows through them. These conditions can easily lead to hypothermia in ill-prepared cavers. Caves can flood, trapping the cavers for days with no food or potable water. If an injury happens, it could take days to extract the victim because the passages may be too small for a rescue litter, and for many other reasons.

It is essential that all participants be reasonably prepared for the hazards, challenges, and unexpected events that may be encountered on a caving trip. Your child's well-being depends on how well prepared he is for caving.

For more complete information on the nature of caves and caving, read the NSS caving brochure, *A Guide to Responsible Caving*, available on the NSS web site [www.caves.org](http://www.caves.org).

### **Basic caving gear for individuals Geared for Safety**

The safety of every caver must be the primary consideration. Those arriving without the required items will not be allowed to go caving.

#### **Helmet**

Helmets guard against head injury, and an adjustable, non-elastic chinstrap attached to the helmet at three or four points is vital for keeping the helmet properly positioned on the head. Proper head protection can save a caver's life, even in a short fall, and protects against other impacts with the cave ceiling, walls, or floor.

There are several types of helmets available that offer different levels of protection. Some helmets are unsuitable for caving. Buy the best climbing/caving helmet you can afford. Helmets that offer the most protection are not significantly more expensive than helmets that offer minimum protection. Consider that the most expensive helmet is far less expensive than an emergency room visit, or the special care required after a brain injury. A helmet that meets UIAA (Union Internationale des Associations d'Alpinisme) standards for climbing may provide superior protection during caving accidents than a "bump" or construction helmet.

If the helmet is supplied by the cave guide, it is up to you, as the youth leader or parent, to determine if the helmet's safety features provide adequate protection. If in doubt, then supply your own helmet or find another cave guide with helmets that meet your specifications.

### **Helmet-mounted light**

A helmet-mounted light keeps the caver's hands free for balance and support, reduces the risk of the light being dropped, lost or broken, and automatically provides light wherever the caver looks. It should provide adequate light to safely navigate over uneven passage. A set of fresh batteries should be installed at the beginning of the trip.

### **Boots**

These can be hiking boots, military combat boots, or work boots as long as they have ankle support and non-slip lug soles. Caving ruins boots quickly, but applying a waterproofing treatment will help protect boot leather. Flimsy footwear, smooth soles, and athletic shoes can be dangerous in a cave and should not be used.

### **Socks**

Synthetic sock liners worn under wool or synthetic socks work best for blister prevention and warmth. Wool and synthetics insulate well even when wet. Cotton socks may encourage blistering and provide no warmth when wet.

### **Cave clothing**

Caves in the United States vary from being dry, warm, and comfortable to being very wet, cold and unpleasant. Most caves are cool enough that warm clothing is required. Dress in layers so that if overheating occurs, a layer of clothing can be removed. Hypothermia, which is a subnormal body temperature, can be a serious risk when inadequate clothing is worn, or if cotton clothing becomes wet.

In cooler caves, cavers may want to wear wool or synthetic fiber long-john tops and bottoms as a first layer over their normal underwear, and woolen or synthetic fibers for any other layers. However denim jackets and pants, sweatshirts, and coveralls are popular as outer layers for trips that do not involve exposure to water or wet mud. Cave clothing should not inhibit

freedom of movement, but not be so loose or baggy that it is prone to snagging on rocks. Be aware that zippers can become clogged with mud. When selecting clothing, remember that cavers may become muddy and wet, and clothing may get torn and dirty. Consider buying caving clothes from a thrift store.

## **Gloves**

Work, gardening, or durable rubber gloves will protect the hands from sharp rocks, and help keep them clean. Gloves should fit the caver's hands so that they do not come off easily. Light synthetic liner gloves as a first layer will help keep hands warm.

## **Knee and elbow pads**

These are strongly advised if a cave requires much crawling. Knee and elbow pads can make the difference between a good caving trip and a miserable one. They may also prevent injury to knees and elbows that could terminate a trip or require a cave rescue. Volleyball-type pads are generally sufficient. Additionally, caver supply stores (on the Internet) carry pads that work well for caving.

## **Pack**

A small day hike pack, or large fanny pack are good choices. Although packs made from synthetic material are preferred, military surplus side packs such as gas mask bags with a single shoulder strap are inexpensive and durable options for cave packs. Any pack used needs to close securely and without the possibility of its contents inadvertently spilling out. It also must be carried comfortably, leaving both hands free. Packs may become ripped or permanently stained with mud.

## **In the pack**

### **Equipment Protection**

Consider packing the following items in resealable plastic containers that fit inside the pack. Hard plastic containers may help keep more fragile contents safe if the pack is dropped.

### **Spare Lights**

Lights can fail. Losing all light in a cave, or traveling with inadequate light, can lead to injuries, fatalities, or a delay in exiting. Carry at least two back-up sources of lighting. Each of these lights must be capable of being mounted on the helmet, and provide enough light to safely exit the cave.

### **Batteries**

Cave trips may last longer than intended. Batteries, enough to last three times as long as the expected trip, are essential for safe caving. It is convenient if all light sources use the same size batteries. If the primary light breaks towards the beginning of the trip, the back-up lights must have enough batteries to last at least three times longer than expected trip.

## **Spare bulbs**

Bulbs burn out, and incandescent bulbs break. Carry at least one back-up bulb for each incandescent (non-LED) light source.

## **Drinking water**

It is important for cavers to stay hydrated, and the water in caves is not safe to drink. Water must be in a durable, unbreakable container with a secure lid, such as a Nalgene bottle or flask, which fits into the caver's pack.

## **A large, plastic garbage bag**

A large, plastic garbage bag is placed in the caving helmet or pack to use to help keep the caver dry in wet passages, or as an extra layer to preserve heat, especially when not moving.

## **Pee bottle**

Human waste does not belong in a cave and must be carried out in a bottle or bag.

## **Food**

Depending on the planned duration of the trip, cavers may want to pack durable and compact food that can be eaten with minimal mess, crumbs, fluid, and trash. Gorp, beef jerky, simple sandwiches, and dried fruit are some options. Bring an extra amount of food in case the trip takes longer than expected. Containers for food need to be unbreakable and water resistant, and fit easily into cave packs.

## **Whistle**

A whistle may be of benefit when attracting the attention of other cavers or a rescue group.

## **Duct tape**

Duct tape may be useful for making emergency repairs or for attaching back-up lights to helmets. A three-foot length rolled up on itself or around a water or pee bottle is generally sufficient and takes up little space in the pack

## **Other items to bring**

### **Medications**

Adults on the caving trip must be aware of the medical condition of each youth and adult on the caving trip. Any medications that may be required while the participants are underground, and instructions for their use, should be provided to the group leader. If a problem were to occur that prohibited an exit from the cave under a participant's own power, it may be hours, if not days, before there is access to proper medical care. The youth

organization's regulations governing the distribution of medication to youths must be followed.

### **Complete change of clothes and shoes**

Caving clothes will get dirty, muddy, or wet. A change of clothing, including socks, shoes, and underwear is necessary for the ride home. Paper towels, water, or pre-moistened wipes are helpful for getting cleaned up.

### **A second large, plastic garbage bag**

This bag is used to hold dirty clothing and equipment during the trip home.

### **Paperwork**

Bring all the necessary permits, consent forms, and waivers needed for the trip, as required by the youth organization. It is important to bring a completed health form on the trip. Caving accidents rarely happen, but should one occur it might help rescue efforts to have medical information readily available.

## **Optional equipment**

### **Space blanket**

Space blankets can help keep cavers warm and dry in emergencies. Cavers may carry these either in their helmets or packs.

### **Hand warmer pouches**

These chemical heat-generators can provide warmth for a short period of time, however, they are no substitute for proper clothing, a well-planned and conducted trip, and if necessary, effective victim management.

### **Disposable flash camera**

The cave environment can easily destroy a camera if great care is not taken. Point-and-shoot cameras with a flash will provide snapshots at a close range to the subject; however most cave photographs require more lighting than can be easily provided without extra flash units. A disposable flash camera, packed in a press and seal freezer bag, might provide a good alternative to carrying an expensive and more delicate camera.

### **Magnifying glass**

A magnifying glass provides a closer view of rocks, fossils, crystals and other things of interest.

### **After-trip snack**

Bring something simple to eat and drink after emerging from the cave, such as a sandwich and a drink in a plastic screw-top bottle. Don't depend on country stores to be open late at night.

## **Money for incidentals**

Money may be needed to contribute to gasoline expenses, or the group may choose to stop for a snack or meal on the way home.

## **Group equipment list**

### **First aid kit**

At least one person in each group should carry a compact, basic first aid kit for common injuries or medical problems that may occur on the cave trip as prescribed by the youth organization.

### **Cave map and compass**

Each adult should carry a copy of the cave map and a compass for assistance when the group needs help route finding. The cave guide should be able to provide the map.

### **Pencil and notepad**

These items may be used to take notes to assist in remembering events, send or leave messages, or assist in planning future trips.

### **Emergency cache**

Bring an emergency cache that includes blankets or sleeping bag, a more extensive first aid kit, and other equipment that may be needed in case of severe injuries. These may be stored in a nearby car or other quickly reached location.

### **Space blanket**

Each group should carry at least one of these in case it is needed.

## **Disclaimer**

### **Liability of authors and publisher**

The authors and publisher of this document make no representation and offer no warranty about the quality, safety, contents, performance, merchantability, non-infringement, or suitability of the material in this brochure. Neither authors nor the publisher are liable for direct, indirect, punitive, special, incidental, or consequential damages, however they may arise, even when the authors or the publisher have been advised of the possibility of such damages.

### **Liability and assessment of responsibility**

All who read this must assess the quality and applicability of this information. No liability will be accepted for the use or misuse of this information or for consequences that result from its use or misuse.