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This program feature was written and developed in part through the cooperative efforts of professional and volunteer Scouters in the Great Salt Lake Council, Boy Scouts of America.

# OPERATION ON-TARGET

## BACKGROUND



The Operation On-Target program feature is an exciting one that tests many of the skills of Varsity Scouts. Operation On-Target can be anything from a wilderness backpacking trek to a high-tech experience with radio and movie-making equipment. It can also include a variety of activities such as radio communications, photography, wilderness survival, mountain climbing, nature study, and making video movies. This event is sometimes called the "mountaintop experience," although the Varsity Scout team can carry out this program feature without having a mountainous area.

On the third Saturday in July each year, teams from all across America will be climbing high-rise buildings, mountain peaks, and tall trees to flash their signal mirrors in the direction of another team. Just about any elevated spot will do. When contact has been made, both teams have concluded many months of preparation and are now "on target."

In the past, Varsity Scouts have signaled from every high point imaginable, from the top of the Empire State Building to the Rocky Mountains, and from ship to shore on the Pacific or Atlantic coasts. Teams have even completed a signaling network through the Rocky Mountains from Canada to Mexico in one day!

Varsity Scout team program managers will have the opportunity to lead portions of the Operation On-Target program feature. Your huddle commissioner will provide you with lots of how-tos in carrying out this feature, including literature from your local council service center.

## PROGRAM FIELDS OF EMPHASIS

The following are some suggested ideas that will help you plan a well-rounded program feature. Program managers assisted by a team committee member carry out these ideas.

### ADVANCEMENT

- Review each Varsity Scout's advancement status.
- Conduct a merit badge clinic or refresher session for the Signaling, Backpacking, Hiking, and Camping merit badges.
- Monitor the team advancement charts regularly.

### HIGH ADVENTURE/SPORTS

- Program manager outlines or updates the team's annual high-adventure event (Philmont, Florida Sea Base, etc.).
- Monitor the team's progress in carrying out the Operation On-Target program feature.

### PERSONAL DEVELOPMENT

- Conduct a forum on why being "on target" in your everyday life is important.
- Plan a fitness program geared to the physical demands needed to reach the "peak" for Operation On-Target.

### SERVICE

- Assist a new team in building its signal mirrors.
- Plan a service project that can be carried out during the Operation On-Target program feature.

### SPECIAL PROGRAMS AND EVENTS

- Hold an open house for new members. Discuss with them the team's On-Target plans and invite them to join the team.
- Conduct a family night program to share photos, slides, or videos made during the team's On-Target participation.

## MOUNTAINTOP CEREMONY

The mountaintop ceremony may be the most rewarding portion of your Operation On-Target experience. The ceremony may be held around a campfire on Friday evening or after the mirror signaling on Saturday.

After gathering your team in a secluded spot, follow the team's outline, have a reverent (Scout Law) mountaintop ceremony that includes:

1. The letter from a famous person
2. The letter from a religious leader
3. Time capsule memorabilia
4. The Coach's Corner

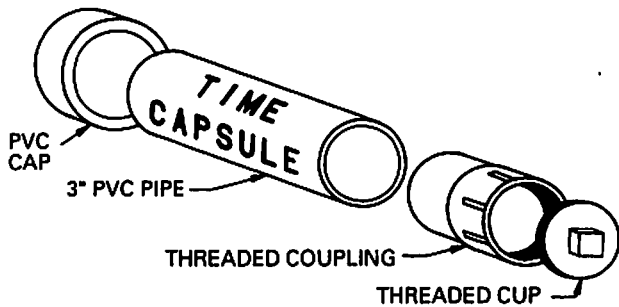
The ceremony might also include a song, prayer, reflection, guest speaker, religious emblems recognition, or history of the peak the team will be using during its Operation On-Target event.

### SAMPLE COACH'S CORNER

Use the mountain you have climbed as an object lesson. The peak is your goal and/or life. At any one moment you are either climbing toward your goal, at your goal, or moving down from your goal. Relate to religious situations or self-reflection if appropriate.

## OPERATION ON-TARGET TIME CAPSULE

The time capsule is a container made to store special items from Operation On-Target and all other special Scouting events. Future Varsity Scouts will enjoy the



Available at most hardware stores in black or white

*Time Capsule*

years of memorabilia from your team's past events. The time capsule could include:

- Photographs
- Special letters and Coach's Corner
- Varsity Scout team roster and guests
- Operation On-Target pin
- Personal totems and comments
- Team history and location
- Similar items from other events
- Summary of the day

PLEASE DON'T POLLUTE:

BRING MIRRORS AND TIME CAPSULES HOME.

## BEST STORY TOLD

In the days before television or cinema, telling stories of places we had been to or things we had done was a form of entertainment and communication. A great deal of competition would develop over who could tell the "best story told."

In Operation On-Target, the opportunity is given for each team to tell its own story using slides, videos, or any other imaginative visual or audio medium.

In developing your own "best story told," you must try to develop those same feelings of excitement, companionship, or the sense of accomplishment you felt on that mountaintop, seeing the response to your mirror flashes in hundreds of beams of lights returned to you.

## YOUR STORY

Before putting your own story together, you will want to check with your local council and find out what restrictions or rules it has established for the "Best Story Told," if any.

The story you tell can start from the day you first talked about your Operation On-Target adventure. Make recordings and take photographs or slide shows or videos from early on in your program. (Take lots of pictures; you will need them in editing later.) The type of story you put together and the medium you use to tell the story will depend largely on the resources available to you in your team or neighborhood.

## SLIDE SHOWS

Slide shows can be a great way to tell your story.

Taking slides can involve the entire team. Now is a good time to make use of your

Photography merit badge counselor to help train the team to take quality photos. Slides can be taken fairly easily and inexpensively with a 35mm camera, and can be developed and edited at your leisure. A simple slide projector can then be used to show your story with the help of a prerecorded cassette with music or words, or both, to tell the story, with cues to indicate when slides should be changed.

To get really fancy with slides, you will have to do some research and find resources with the know-how and equipment to extend your capability to 2-, 3-, 6-, or more rack-mounted slide projects run by dove units or computer with automatic cues, fade-in/fade-out, and all sorts of special features offered by your equipment.

There are no limits except those set by time, effort, and your local council.

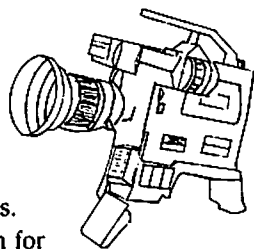
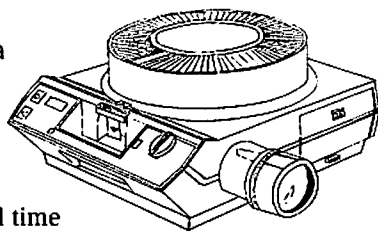
## VIDEOS

Video cameras have become common, and their versatility allows the user to be creative with a number of editing features.

Videos perhaps allow more room for creativity than slides, but the cost and availability of equipment might be prohibitive to many teams.

## THEORY

Whatever visual medium you select, you should start recording your Operation On-Target adventure early both with your camera and recorder. Studies of media impact have shown that the audio, or sound, from a production has a stronger impact on the senses than the visual. Consequently, you will want to put at least as much emphasis on your sound track as your visual. Try taking a recorder with you and capture your activities on-site—a colorful panorama of sound from the natural environment of birds and wind to the chatter of the Varsity Scouts and the static of a ham radio conversation. If live recordings are not possible, a creative sound track can be put together in somebody's living room.



## SUMMING UP

Plans and goals should be made early in your program—perhaps a theme to base your photograph or sound track around. Draw the entire team together to help plan the show, listen to everyone's input, and let the team design the story. In the end you will not just tell a great story and pass your excitement and experiences on to others, but create wonderful memories, both with each participant and visually on film—something that can be enjoyed by family and friends now and years down the road.

Every time you watch the "Best Told Story" you helped create, the memories and sense of accomplishment will be a reward felt over and over.

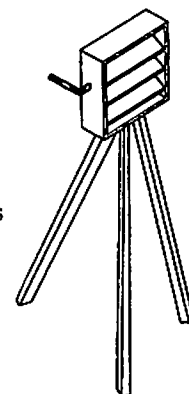
## HELIOGRAPH

The heliograph was an instrument used to send signals by reflecting sunlight with a mirror or mirrors. Heliographs were used by the armies of several countries during the late 1800s, especially the U.S. Cavalry in the American Southwest from mountain peak to mountain peak.

In Operation On-Target, the heliograph is again used, but this time for fun. Varsity Scout teams from all over the country climb a hill, a mountain, a building, or ascend to any safe high point, carrying with them mirrors—from small handheld ones that can be seen from as far as 30 miles away, to large base-mounted mirrors. It is strongly recommended that plastic mirrors be used instead of glass; picking up broken pieces of glass can cause cuts and problems in transporting the pieces back. Plastic mirrors weigh about half the weight of glass mirrors and, when climbing, every ounce saved helps.

Everyone will feel the excitement when signals are returned from neighboring peaks, the larger mirrors really standing out from the smaller ones. Every team should have at least a 24-by-24-inch mirror on a light tripod; this larger mirror tends to catch the attention of stations on the other peaks and may bring more flashes your way.

Work with another team and prearrange to signal each other at a certain time. Try setting up a code, or use Morse code.

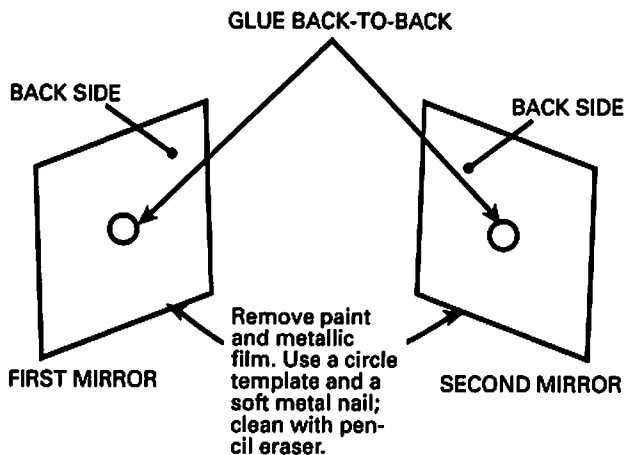


*Today's  
heliograph*

## AIMING

Learning how to aim a mirror takes a little patience, and knowing where your flashes are going can be critical when you see a reflection across the valley or on a neighboring peak. As you send your signal and receive responses, consider the strides made in technology. When once lives depended on those light beams, now they create fun and excitement for Varsity Scout teams.

### TO ASSEMBLE MIRRORS:

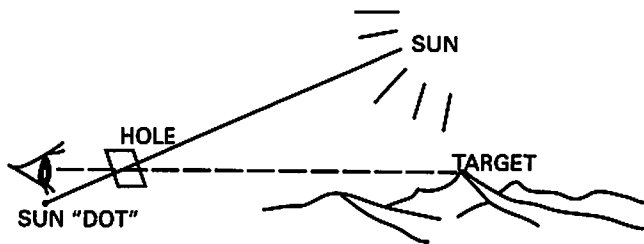


Using a signal mirror is fairly easy, though it may seem complex at first. With practice and use, it becomes second nature and a valuable resource in your ability to survive.

1. Look through the hole at your target.
2. Find the "dot" in the back mirror (usually on your hand, face, or shirt).
3. While looking at your target, arrange the mirror such that the "dot" crosses back and forth over the hole.

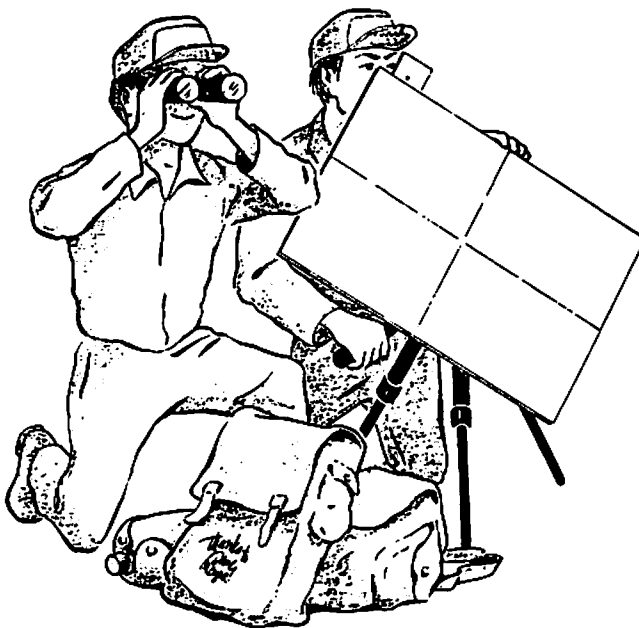
In other words, while looking at your target, align the reflected hole with the real hole, and you're on target.

To check yourself, sight in on a reflector such as a license plate, tail light, or freeway sign. These will really light up.



In a 15- to 20-mile range, a 3" or 4" mirror is sufficiently imposing that you can clearly see it. For greater range and brilliance, use your small mirror as a "sight" by taping it (in the same place) to a corner or edge of a larger mirror.

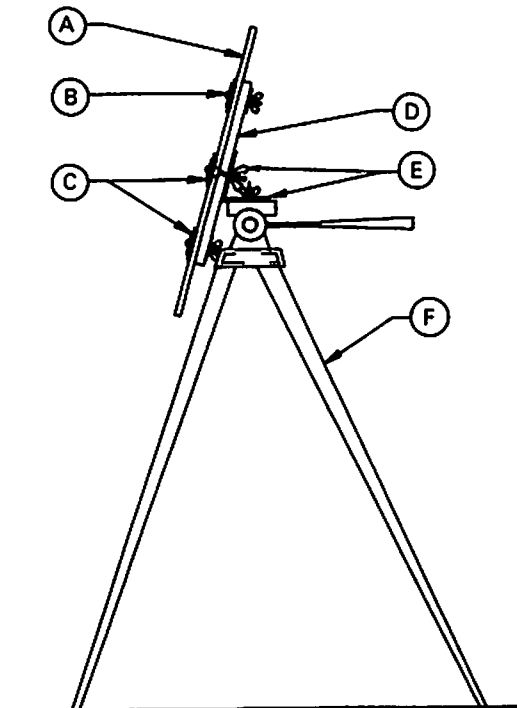
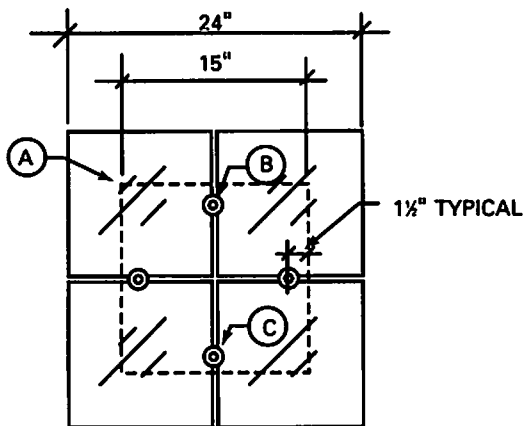
It can be used with Morse code by clamping to a tripod and interrupting the continuous signal with a cardboard deflector at appropriate intervals.



## HELPFUL TOOLS YOU CAN MAKE

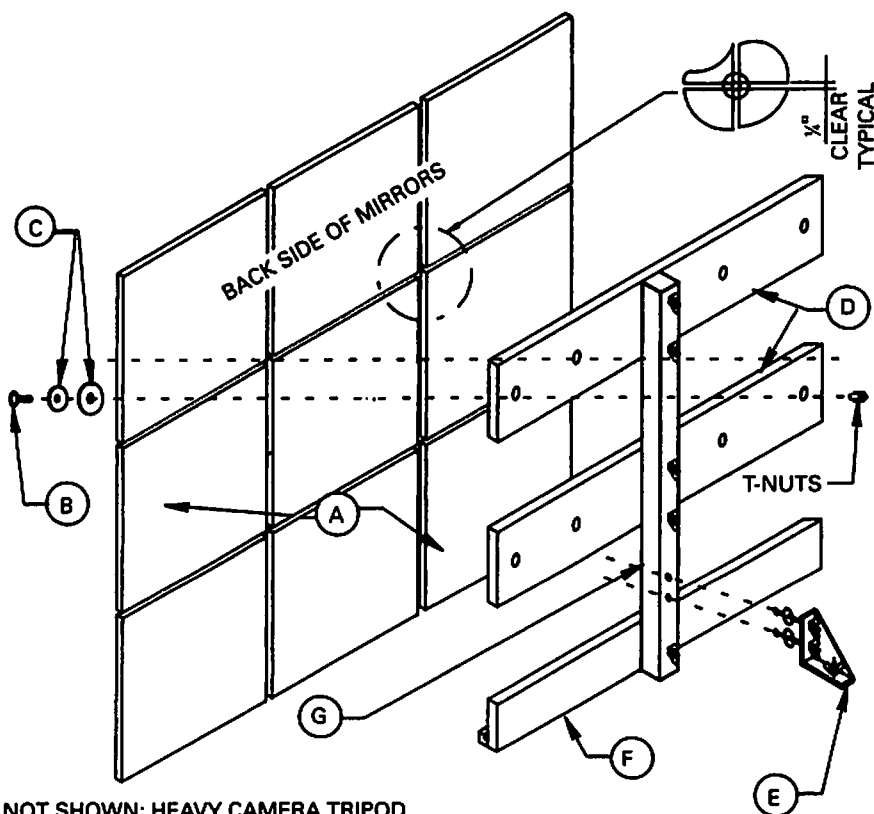
### TEAM MIRROR SCHEMATICS

The following pages illustrate two examples of team mirrors. Design your own. Make it lightweight and easy to carry and assemble/disassemble. Share your design with other teams. Remember, large mirrors can make your Operation On-Target adventure more exciting by pulling in more signals.



**MIRROR ASSEMBLY INSTRUCTIONS**

- A. Four plastic 12" x 12" mirror tiles
- B. Four 1/2" x 1 1/2" dome head bolts with wing nuts (Wing nuts can be replaced with T-nuts, and bolts can be replaced with thumbscrews.)
- C. Four fender washers with glued rubber or cork backing
- D. Plywood or particle board, 3/4" x 15" x 15"
- E. Corner brace, 4" x 4" x 1/2" with one 3/8" x 2 1/2" flathead screw with one fender washer and wing nut
- F. Camera tripod



NOT SHOWN: HEAVY CAMERA TRIPOD

**MIRROR REAR PERSPECTIVE**

- A. Nine plastic 12" x 12" mirror tiles
- B. Eight 1/2" T-nuts and thumbscrews (may be replaced with dome head bolts and wing nuts)
- C. Eight fender washers with glued rubber or cork backing
- D. Three boards, 3/4" x 5 1/2" x 27", varnished or painted
- E. Corner brace, 4" x 4" x 1/2" with two 3/8" x 2 1/2" flathead screws with fender washers and wing nuts
- F. Board, 3/4" x 3 1/2" x 27", with lip screwed and glued as shown; fasten to 1 1/2" x 1 1/2" board with one 1/2" x 3" flathead screw with wing nut and washer
- G. One 1/2" x 1 1/2" x 27" board with two 1/2" x 3" flathead screws; fender washers and wing nuts in each 3/4" x 5 1/2" board

## HOW TO MAKE A HAND SIGNAL MIRROR

Place two mirrors back-to-back with a hole in the middle to see through. The mirrors can be any size and the hole can be placed anywhere.

The back mirror needs only to tell you where the "sun dot" is that comes through the hole. It can be small and thin.

The front mirror needs to be clean, structurally strong, and as big as you want to carry.

Mark the back surface where you want the hole to be. Scrape off a 1/8-inch-diameter circle of the paint with the point of a single-edge razor blade or similar device. Try not to scratch the glass. There will still be some glossy stuff on the glass that comes off best with a pencil eraser and elbow grease. Make the edges clean because this is your "aimer."

When you have both mirrors "holed," place them together back-to-back using super-glue to hold them together. Keep glue away from the hole.

How to use the signal mirror:

1. Look through the hole at your target.
2. Find the "dot" in the back mirror (usually on your hand, face, or shirt).

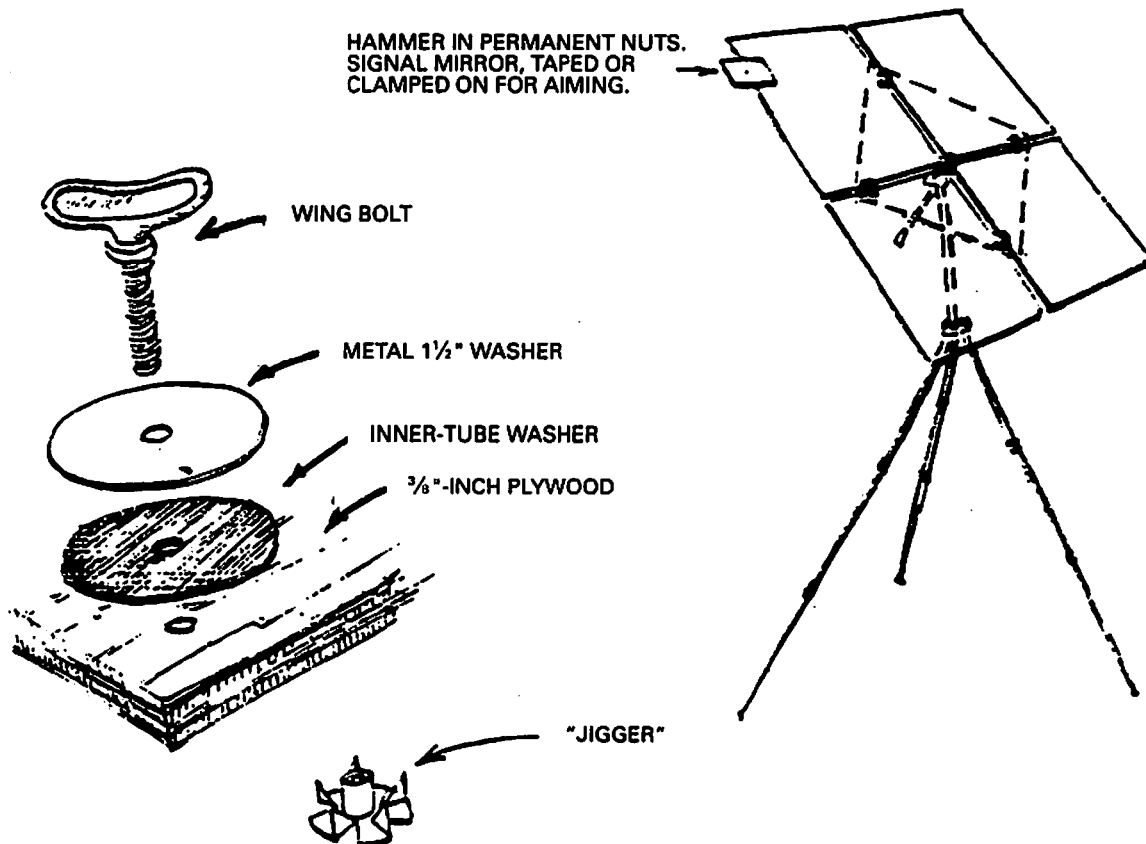
3. While looking at your target, position the mirror so that the "dot" crosses back and forth over the hole. In other words, while looking at your target align the reflected hole with the real hole and you're "on target."

A 2-by-2 foot square mirror would accomplish the same function, but it is big and heavy. This one folds up to fit into a backpack. Use standard 1-by-1 foot decorative mirrors. Cut a 1-by-1-foot piece of 3/8-inch plywood (if it's thinner, it may warp). Drill five holes: one in the center, the others 1 1/2 inches from each corner. These are to accommodate the little "jiggers" (hammer in permanent nuts, as shown). Use 1/4-inch coarse-threaded jiggers with a wing bolt and a 1 1/2-inch washer plus a homemade rubber washer from an inner tube.

Buy an extra jigger and put it near the center (but offset) and on the other side of the plywood. You will find it will hook up perfectly to a standard camera tripod, which will let you keep the signal on someone you know is there . . . until they notice you. Or send code by interrupting the signal with a hand-held cardboard "shutter."

You may also want to hook a cabinet handle to the back center of the plywood for hand use.

## MAKE A GIANT FOLDUP SIGNAL MIRROR



## **OPERATION ON-TARGET TASK DESCRIPTIONS**

There are some responsibilities or tasks that need to be carried out.

### **TEAM HISTORIAN**

Record and report the happenings of the event with full coverage of the locally planned Operation On-Target fireside get-together with parents and chartered organization to show pictures and share the Operation On-Target experience.

### **TEAM FLAG CHAIRMAN**

Create a symbol—like the “Stars and Stripes” is to the United States—to develop your own team esprit de corps. Carry it with you, unfurl it on the peak, and capture the moment on film with your teammates, perhaps in uniform, for all posterity!

### **TEAM PHOTOGRAPHER**

Record the Operation On-Target experience on film to best re-create your feelings or message for your locally planned fireside (approximately two weeks following the event) and perhaps for your own get-together with parents and chartered organization.

### **TEAM MAP AND GEOGRAPHY EXPERT**

Become your team’s “sensor,” knowing such things as how to get them to the peak, where your team will fit in—in the overall operation, your radius of influence, locations of your potential return signals, and what your 360° horizon will look like from on top.

## **CHOOSING A PEAK**

Perhaps the key to your Operation On-Target adventure is the peak or high point from which you choose to signal. Don’t limit yourself to a mountain. A high building might be more appropriate in your area. Use your imagination; signaling from a boat in the middle of a lake (of course, while observing Safety Afloat procedures) could be an exciting On-Target station, as could a small wooded hill, a guard tower (with permission), a bridge, or the top of a ski run. Look around, be open-minded, and choose somewhere fun.

## **TEAM SKILL OR FITNESS LEVEL**

A peak should be chosen that all members of the team can reach or a large team could be split, each half choosing its own peak with the level of difficulty acceptable to each group. The team Coach should be aware of all difficulties and dangers associated with the peak chosen by the team, and should also be aware of and considerate of the limits of all team members.

## **SOLITUDE**

Close, easy-to-get-to peaks will be chosen by more than one team. A peak can be used by several teams and can add to the excitement of Operation On-Target with the camaraderie or competition with other teams. However, if your team wants to be by itself, you will probably want to choose a peak that is more inaccessible.

## **WEATHER**

Even though Operation On-Target occurs in the summer, high mountain peaks have been known to have snowstorms all year round. If this type of peak is chosen, the team must be prepared for all types of weather.

## **VIEW**

If you are choosing a secluded peak, don’t get so secluded that you don’t see any other mirror flashes. Make sure that other teams will be close enough so that they can see your mirrors.

## **FUN**

Make Operation On-Target the center of your activity, but don’t limit yourself to just flashing mirrors. Plan other activities that all can join in on such as hiking, fishing, rappelling, and orienteering, or have your team set up a schedule or list of activities.

Be prepared for the activity. Review first aid for hypothermia and mountain sickness, and take along lots of sunscreen (factor 20 or higher). Give yourself lots of time to reach your stations, and don’t push your team in a low-oxygen, high-altitude area.

Check with your local U.S. Geological Survey office or state natural resource organizations to find out about peaks, mountains, or hilltops in your area.



## **ON-TARGET WITH HAM RADIO OPERATORS**

### **WHAT DOES THE HAM RADIO OPERATOR DO?**

When you are on a peak scanning the horizon, there is a lot of country to see. It can be pretty difficult to pick out any one tiny mirror flash if you don't know where to look. Your radio operator will be in contact with other teams all around you to help coordinate their locations with your team. This person will also be able to confirm your contact; after all, you want to know that the other guys saw you, too.

### **HOW DO WE FIND A HAM RADIO OPERATOR?**

Many of you are probably already aware of hams in your neighborhood. If you are not, here are some suggestions on how to find them. The first clue is the antenna. Many hams have huge antennas on their vehicles. Another thing to look for is a "call sign" license plate. A ham station call will have three to five letters with one number in the middle somewhere, such as N7CES or WA7UFS. Many hams are very public service-oriented, so when you see one, don't hesitate to approach a ham operator and explain what Operation On-Target is, and ask if he or she would like to help. (It might not be a bad idea to approach the ham in uniform to help make a good impression.)

It would be a good idea to try to contact a ham as soon as possible. There are a limited number of them around, and there always seems to be other public service events scheduled that request their services.

When you do find a ham, you might want to invite the ham to introduce your team to amateur radio. Most hams are proud of their stations and their hobby and love to show them off. It also provides an opportunity for you to get better acquainted.

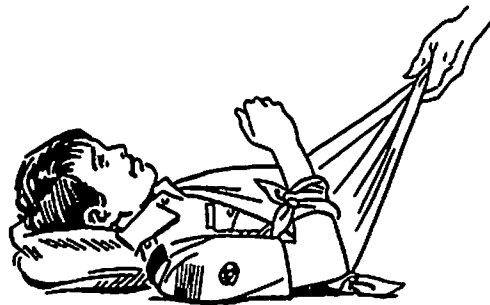
Check with your local council for radio frequency details.


## **SAFETY**

Every year there are fatalities across the United States involving climbers and hikers. Many of the accidents are from just plain carelessness; some are from individuals not recognizing hazardous situations when they get into them.

Some basic mountaineering skills and some good common sense can go a long way in keeping you and your team safe in a mountain setting.

Don't overestimate your potential or your knowledge of mountaineering. If the areas you're planning to visit require special skills unknown by you and your team, or special equipment you don't have, then don't go. Pick a safer environment. Don't gamble with your lives.





Following are some mountaineering safety tips. They are by no means the only safety tips you need to know.

- 1. Snow pack.** Glaciers or snow fields hold their own kind of hidden dangers. Moats are voids formed between the hidden rocks underneath and the snow pack. If you have to cross large areas of snow pack, use a rope or, at the very least, an ice pick.
- 2. Rock climbing.** Climbing cliffs or rock faces is a learned skill; it's not one that comes naturally. Certain types of rock should not be climbed at all. Learning how to climb, as well as what to climb, requires time-consuming training and special equipment. Many people have become trapped on cliffs because it appears easy to climb, only to discover it's not so easy to descend.
- 3. Sliding.** Sliding down shale, smooth rock, snow, or ice may seem like a lot of fun, but most natural slides end at cliffs or in a large jumble of jagged boulders. Be careful.
- 4. Never hike at night or alone.** Always hike with a buddy.
- 5. Be especially careful with fire.**
- 6. Never split up in the backcountry; stay together.**
- 7. Watch weather carefully,** being especially careful not to get caught in a deep canyon during a rainstorm, or on a ridge during a lightning storm, or at a high altitude by a snowstorm.

**8. Know the symptoms of and treatment for hypothermia.**

**9. Be aware of the consequences of drinking contaminated water.** Become familiar with Giardia and the illness it causes.

**10. Don't exhaust yourself** or weaken members of your team by trying to travel too far or too fast.

**11. If you get lost, don't panic.** Sit down and relax for a few minutes while you carefully check out your surroundings and your compass, then plan your next move with confidence, or wait for help.

**12. Stay clear of wild animals.** A healthy respect can prevent potentially dangerous confrontations.

Although well-publicized when they occur, rattlesnake bites are not common, and death from a rattlesnake bite is extremely rare. Complications from beestings are much more common. However, if one of your fellow team members is bitten by a snake, the best treatment is to get medical attention as soon as possible, keeping the victim calm in the process. Both tourniquets and cutting are not recommended unless you know exactly what you are doing.