



**NATIONAL SKI PATROL SYSTEM, INC.**

# **AVALANCHE INSTRUCTOR'S MANUAL**



## **SECTION 2**

### **AVALANCHE AWARENESS (2023 REVISION)**

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# **SECTION 2 AVALANCHE AWARENESS AND KNOW BEFORE YOU GO COURSES**

## **Course Standards**

### ***Target Audience***

The Avalanche Awareness presentation is designed for recreationists who are considering or beginning to venture into areas where avalanche hazard exists. Avalanche Awareness may be presented to recreational groups, clubs, schools, patrons of ski swaps, recreational gear retailers, and other interested groups. NSP avalanche instructors are encouraged to provide Avalanche Awareness presentations as a public service/public relations tool in their communities. The presentation should reflect audience age, interest and time constraints.

### ***Desired Outcomes***

At the end of this presentation, participants should be able to:

- Define avalanche hazard in terms of human consequences
- Identify/describe typical avalanche terrain
- Identify/describe obvious clues of avalanche hazard
- Identify/describe critical conditions to avoid
- Describe Snow Immersion Suffocation (SIS) problem associated with tree well traps and precautions for avoidance.
- Describe rescue skills they would need to learn and practice
- Recognize that an awareness presentation does not adequately prepare attendees to venture into avalanche terrain alone.
- Identify/describe next steps to take for developing knowledge and skills related to avalanche safety and rescue.

### ***Overall Approach***

Presentations should be adjusted to accommodate individual audiences. Presented content should be , brief, descriptive, basic and be accompanied by images and demonstrations that effectively communicate the concepts. Instructors should use everyday language wherever possible (e.g., "injury" instead of "trauma"; "loose" instead of "cohesionless"). Give quantifiable data in broad terms (i.e., "30° or steeper slope angles"; "snowfall of an inch or more per hour"). Decision-making concepts should support a "go-no go" theme.

### ***Administration***

Avalanche Awareness is a short presentation (normally 60-90 minutes which includes Q & A) which is not considered an avalanche education course. Presentations are given to inform attendees of avalanche hazards and encourage them to attend avalanche education courses prior to travelling in avalanche terrain. These presentations are not registered with NSP and do

not count toward instructor recertification requirements. Presenters must be certified NSP avalanche instructors and must inform the division supervisor of the presentation and of the approximate number of participants.

## ***Alternative Curriculum***

*KNOW BEFORE YOU GO* (KBYG) is a free video developed by the Utah Avalanche Center, the Colorado Avalanche Information Center (CAIC) and The Friends of CAIC:

<https://www.youtube.com/watch?v=EvuGQkEYXeE>

It is a 15-minute video stressing 5 key steps to complete prior to travelling into uncontrolled avalanche terrain. This video is a great lead-in for avalanche awareness talks but does not replace the content below.

# **Avalanche Awareness Lesson Guide**

(Approximate duration: 60-90 minutes)

## ***Desired Concept Development***

- If caught in an avalanche, survival chances are poor.
- Most avalanche incidents are caused by the victim or someone in their party.
- There are known terrain, weather and snowpack factors that contribute to avalanche potential.
- There are regional avalanche centers that issue warnings and advisories for avalanche hazard for many areas throughout North America and Europe.
- Even when the overall avalanche danger rating is low, there may be local terrain where danger is high.
- Safe travel decisions in avalanche terrain need to be based on assessments of many factors.
- Rescue equipment should always be carried when traveling in avalanche terrain.
- Rescue equipment is useless unless it is fully functional and one knows how to use it effectively.
- Even if found quickly, avalanche victims may be severely injured and need immediate emergency medical care.
- This presentation will not prepare you to travel safely in avalanche terrain; more extensive training is needed.
- You should have at least Level 1 avalanche safety education before traveling in the backcountry.

## ***Preparation Resources***

- Basic avalanche books & texts (for display only)
- Images/video clips of avalanches, paths, cornices, etc., preferably depicting local conditions
- Images of snow layers, test pits, etc.
- An avalanche awareness video or other appropriate media (e.g. "Know Before You Go")
- Case studies of avalanche incidents (Use local incidents or ones with terrain similar to what the audience is likely to experience.)
- Beacon, Shovel, Probe (for display purposes)
- Avalanche safety pamphlets/brochures for participants to take home

## ***Key Terms***

- Avalanche
- Avalanche hazard
- Avalanche Bulletin
- Avalanche Danger Scale
- Cornice
- Human factor
- Loose snow avalanche
- Roof avalanche
- Slab
- Slab avalanche
- Snowpack
- Terrain factor
- Trigger
- Weather factor

## ***Content***

- A. Consequences of being caught (age-appropriate)
  1. Survival statistics
  2. Causes of death
- B. Avalanche hazard (definition, examples)
- C. Basic types of avalanches (descriptions, images)
  1. Loose snow
  2. Slab
- D. Avalanche triggering
  1. Natural vs human caused (numbers)
  2. Emphasize triggering by victim or someone travelling nearby.
  3. Avalanches normally occur in a specific range of slope angles. However, slope angle is difficult to determine.
- E. The human factor (the factor that we might be able to control)
  1. Victims of avalanche incidents are most often the trigger
  2. Individual human factors
    - a. Examples
    - b. Influences on decision making
    - c. Difficulty with making rational decisions
  3. Group dynamics
    - a. Small groups
    - b. Large groups
  4. Means of countering human factors (basic descriptions)
    - a. Mutually agreed upon leadership
    - b. Group consensus regarding goals and alternatives
    - c. Detailed planning (make as many decisions as possible before departure)
    - d. Willingness to constantly reevaluate and modify goals for safety purposes
    - e. Constant and open communication
    - f. Decisions based on facts, not assumptions, beliefs or desires
- G. Decision-making aids (emphasize role in avoidance; display images, handouts)

1. Avalanche Bulletins/Advisory recommendations
  - a. North American Public Avalanche Danger Scale:  
<https://www.avalanche.state.co.us/forecasts/help/avalanche-danger/>
  - b. Aspect and Elevation roses
  - c. Problem discussion
  - d. Travel advice
- H. Minimum equipment for the winter backcountry traveler (display)
  1. Compass
  2. Clinometer
  3. Transceiver
  4. Probe
  5. Shovel
  6. First aid kit
  7. Outside communication device (radio, cell phone, SPOT, inReach, etc.)
- I. Rescue overview (simple, brief descriptions)
  1. Importance of companion search
  2. Search and rescue equipment
    - a. Transceiver
    - b. Probe
    - c. Shovel
- J. Minimum training and skill development
  1. Level 1 Avalanche course for recreationist
    - a. Full course that meets American Avalanche Association (AAA):  
<https://www.americanavalancheassociation.org/> curriculum standards
    - b. NSP Level 1 Modules 1-2
- K. Snow Immersion Suffocation (SIS):  
[https://www.nsaa.org/NSAA/Safety/Safety\\_Programs/Tree\\_Well\\_Deep\\_Snow\\_Safety/NSAA/Safety/Tree\\_Well\\_Deep\\_Snow\\_Safety.aspx?hkey=05244738-1088-4e3d-b4f0-892b7abaf059](https://www.nsaa.org/NSAA/Safety/Safety_Programs/Tree_Well_Deep_Snow_Safety/NSAA/Safety/Tree_Well_Deep_Snow_Safety.aspx?hkey=05244738-1088-4e3d-b4f0-892b7abaf059)
  1. Associated with entrapment in tree wells
    - a. Smaller trees with encased branches produce large tree wells
    - b. People falling near one tend to slide in headfirst
      - 1) Inverted, unable to reach or release skis/snowboard
      - 2) Disturbance shakes snow off tree branches, filling in well, (further entrapment) and hiding surface clues of skier/rider presence.
    - c. Suffocation can occur within minutes
    - d. Delay reporting missing person
  2. Safety
    - a. Don't ski/ride through treed areas alone; partners keep each other in sight
    - b. Avoid getting too close to trees, especially evergreens.

### ***Suggested Instructional Activities***

- Show an avalanche awareness video, such as KNOW BEFORE YOU GO—discuss the conditions and human factors portrayed.
- Ask participants about their favorite or intended form of recreation in the snow. Ask if it is possible for them to be exposed to avalanche hazard.
- Set up a display of typical backcountry travel gear described in the presentation.
- Produce a list of Level 1 avalanche courses offered in the local area.

- Hand out a brochure with basic tips on mountain and avalanche safety for participants to take home.
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**END of Section 2 AVALANCHE AWARENESS**