

## YOUTH AVALANCHE EDUCATION IN JACKSON, WY

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**ABSTRACT:** With an ever-growing number of open boundaries, backcountry gates and the increased popularity of backcountry travel, more young skiers, riders, and snowmobilers are accessing the backcountry. For the past eight years, the American Avalanche Institute has been working with the Jackson Hole High School, through their mountaineering club and the physics department, to provide avalanche education for the youth of Jackson, Wyoming. In the past four years, AAI's youth avalanche education program has expanded to include the Jackson Hole Middle School, the Jackson Hole Community School, the Journeys School, and a youth program (ages 10-18) for the Jackson Hole Ski Club. AAI's youth education programs work with local teachers and educators to build an educational progression from avalanche awareness at age 10-12, through advanced avalanche awareness in middle school, and on to a Level 1 avalanche course in high school. AAI has modified its standard curriculum to reach the younger audience. These kids are phenomenal skiers, snowboarders and snowmobilers and we have worked hard to help students build their knowledge of snow and avalanches while their travel skills advance. Emphasis has been placed on understanding the difference between in-bounds and out-of-bounds snow-packs; teaching students how to understand the avalanche hazard forecast; recognizing obvious signs of instability; and avalanche terrain recognition. A strength of the program is the built-in progression, where students receive a consistent message throughout their pre-teen and teenage years. They review information each year and then build on this knowledge and their previously acquired skills.

**KEYWORDS:** avalanche education, youth education, school programs, science education, Wyoming

### 1. INTRODUCTION

Winter backcountry use is exploding throughout the U.S. The increase in winter backcountry use involves a spectrum of ages. It is not uncommon to see teenagers out in the backcountry without adult supervision. With the increased popularity of skiing, riding, snowmobiling and hiking in the backcountry comes an increased need for avalanche education. American Avalanche Institute (AAI) began working with the Jackson Hole High School (JHHS) 10 years ago to provide avalanche education for the youth of Jackson, Wyoming. Since that time, AAI's youth avalanche education program has expanded to reach hundreds of students a winter, from ages 10-18, through five separate programs. As part of our community outreach program, AAI has worked with the Jackson school district, the Jackson Hole Ski and Snowboard Club, and the Steve Romeo Memorial fund to develop a program that reaches local kids

from elementary school through high school. Winter backcountry travel is an integral part of life for many that live in a mountain town. The goal of this program is to provide a progression in avalanche education for students as they grow up in the Jackson, WY area.

### 2. KEY CONCEPTS

Most current U.S. avalanche courses are built for adult learners. These courses take place over several days and are divided between classroom and field time. The classroom time is often in a lecture format. This format proves challenging for students ages 10-18, who often have shorter attention spans. Other notable differences between youth and adults include their experience level in the backcountry, their understanding of risk and consequence, and a difference in learning styles.

AAI has built an avalanche education program for younger students focused on increased hands-on activities, shorter instructional periods, and a focus on the difference between the ski area and the backcountry. Repetition is another piece of the puzzle with the youth avalanche education program. Each class that students take from AAI has the same message: know the difference between

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the ski area and the backcountry, be prepared with knowledge and equipment before considering backcountry travel, only travel in the backcountry with prepared partners, and educated and prepared parents/guardians need to be with you. An unanticipated benefit to the development of the youth avalanche education program is the increased creativity in our adult education classes. After teaching the youth program, instructors add more hands-on activities and creative approaches to topics in our other courses.

### 3. CURRENT PROGRESSION

AAI currently operates four programs in Jackson schools and one program in conjunction with the Jackson Hole Ski Club. The following is an overview of each of these programs, complete with the number of kids who participate each year, the targeted age group, and the learning outcomes.

#### 3.1 *Ride Safe*

Ride Safe is an avalanche education program for kids ages 10-18 years old. Ride Safe is run in conjunction with the Jackson Hole Ski Club. This program is run during the winter break at Snow King Ski Area. Last winter, Ride Safe reached 130 students during two days.

Ride Safe is offered in four three-hour segments. These segments are divided by age groups – 10-11, 12-13, 14-15, and 16-18. The curriculum for these segments varies based on the age group. All groups discuss the differences between the ski area and backcountry and what it takes to be prepared to travel in the backcountry – including knowledge, experience, rescue and first aid equipment, and an experienced, educated adult present. All groups also spend time learning about avalanche transceivers and doing simple rescue drills outside.

When working with the younger age groups, the message is avoidance – stay in bounds, understand what backcountry means, understand avalanche control and closures, introduce the recipe for an avalanche. The message is similar to that of the Canadian Avalanche Centre (CAC) grade guidelines (Canadian Avalanche Center website).

When working with students ages 16-18, our message continues along the same theme and expands into avalanche terrain identification, a discussion on human factors, an introduction to a layered snowpack, and what should be in a backcountry backpack.



Fig. 1 – Students in the field during the Ride Safe Program.

#### 3.2 *Jackson Hole Middle School*

AAI has been working with the Jackson Hole Middle School for the last two years. Each winter we reach between 10-15 students through a series of four two-hour sessions after school and one full field day at Snow King Ski Area. This program is put on with the help of Jackson Hole Parks and Recreation.

The stated goals of the middle school program are:

- understand the differences between ski areas and the backcountry
- recognize obvious signs of instability – collapsing, cracking, avalanche activity
- read and understand the forecast page
- know how to turn on and use a digital transceiver
- learn how to find one buried transceiver
- know how to use safety gear - transceiver, shovel & probe, rescue tarp
- learn cardinal directions
- understand wind loading
- understand “classic” Teton loading patterns
- understand layered nature of snowpack
- recognize avalanche terrain
- measure slope angles
- recognize “indian signs”

Our strategy for this program is similar to that of the Ride Safe program in that we focus on student interaction and have hands-on activities for each day of the course. Examples of activities that we do in the classroom include:

- Build terrain boards and then build a mountain snowpack with flour, sugar

and potato flakes. Once the snowpack is on the board, one can demonstrate the effects of slope angle and anchoring.

- Relay races with full pack. Run across field, turn beacon to search, assemble probe and shovel, put it all away, beacon back to send, run back across the field
- Single beacon searches
- Rescue drills
- What's in a pack?
- Read forecast and answer questions.
- Snow pit demonstration – introduction to a layered snowpack, harnesses, basic crystal identification, and introduction to stability tests

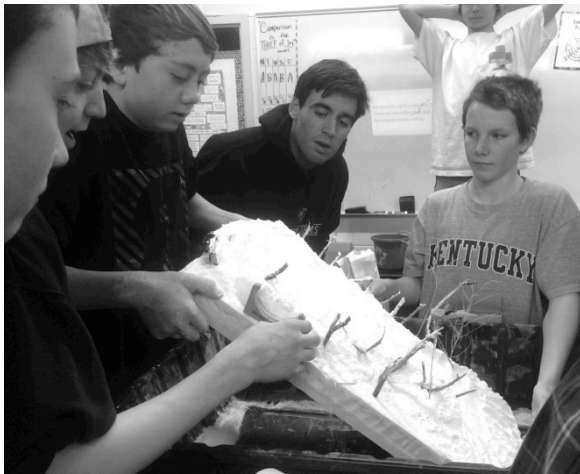


Fig. 2 – Students using the terrain board they built to simulate avalanche activity.

After running this Ride Safe course the first year, we came to recognize that many of the kids do travel in the backcountry. We refocused our message to them on the second year – understand the difference between the ski area and the backcountry, understand avalanche control and closures, and if you are venturing into the backcountry, always travel with a knowledgeable parent, and always check the forecast. We spend a significant amount of time reading and interpreting the forecast, looking for reports of recent avalanche activity, significant wind, significant snowfall, reports of unstable snow, and danger ratings by the forecasters. Most of this learning is done through hands-on activities, question and answer sheets, and interactive scenarios.

### 3.3 Jackson Hole High School

AAI works in conjunction with the Jackson Hole High School and physics teacher Garrick Hart to provide an avalanche awareness curriculum to all physics students. This program reaches approximately 160 students/year. The avalanche awareness program consists of a physics unit taught about snow and avalanches in the classroom. Guest instructors, small group work with accident analysis, interactive multi-media lessons, Jeopardy-style reviews, and lectures serve to teach students over the course of the 8-10 classroom days. As part of this program, students head to Grand Teton National Park where they spend the day working with AAI instructors and volunteers from Teton County Search and Rescue. Students are introduced to avalanche transceivers and practice simple rescue drills, as well as spend time in snow pits, learning about the layered snowpack, performing crystal identification, learning and performing stability tests, and discussing obvious signs of instability.

Students who want more out of this avalanche program have the option to continue with AAI for one more classroom session and two full field days in the backcountry. The time, topics and amount of instruction exceeds the AAA guidelines for Level 1 courses. Students who complete this additional training are given a Level 1 completion certificate. This last winter, AAI and JHHS expanded the Level 1 offerings and worked with students on snowmobiles for the first time. This was an exciting development. Our fundamental messages remained the same with the snowmobilers, but we tailored our field day to match snowmobile-based observations and practices.

### 3.4 Jackson Hole Community School

AAI works in conjunction with the Jackson Hole Community School (a charter school with grades 9 to 12) to offer a five-day Level 1 avalanche course. This course takes place during the 'mini-mester' - a week-long, immersion-based program that emphasizes the school's core values of academics, leadership, and service. The advantage of this offering is that students specifically choose the topic that interests them. The students in the Level 1 are truly committed and interested in completing a Level 1 course.

This offering is five days, approximately 7-8 hours each day. The course covers AAA guidelines for a

Level 1 course, and is able to spend more time repeating and practicing skills in the field. With five days, students are able to not only build a solid foundation in snow and avalanche understanding, but they also learn to assemble a rescue sled, spend focused time learning to read topographic maps, spend focused time each day studying the avalanche forecast where they glean obvious clues and red flags from the forecast, and then discuss the difference between the ski area and the backcountry.



Fig. 3 Students in a pit with an instructor, outside the Snow King Ski Area boundary.

#### 4. LEARNING ALONG THE WAY

Over the course of developing the Jackson youth avalanche education program, we have learned many lessons.

- Shorter programs have better outcomes. Students have limited attention spans and parents have busy schedules. The three-hour windows of the Ride Safe program cover the desired learning outcomes, get kids outside, and are low commitment for parents.
- It pays to be creative. Less lecture – more interaction is not only more engaging for the students, but a good challenge for the instructors. Instructors often walk away from these courses as better adult educators having come to the realization that topics can effectively be taught in different ways.

- Very few students have backcountry gear. It is important to choose a venue that is accessible to students on alpine gear or snowboarding gear or in winter boots. \*Backcountry Access™ has been extremely generous with the school programs providing beacons, probes, and shovels for the Ride Safe program. Even for a professional avalanche school, having 80 sets of rescue gear is a huge stretch. Our partnerships with BCA and Black Diamond have been crucial for running these programs
- Students back out of commitments at the last minute. Changing student numbers is challenging for staffing courses. We now ask for a minimal financial commitment from students for the Level 1 course at the high school.
- A course coordinator, in charge of logistics, interaction with parents, and directing traffic, is an important role to fill on large programs. This coordinator is not responsible for any instruction.
- Snowmobiles present additional logistics including insurance, driving logistics, and potential for mechanical issues.
- Presenting a consistent message year to year reinforces key concepts and allows teachers to build upon prior learning.
- Youth avalanche education takes cooperation between all involved. Inclusion of teachers and parents helps ‘prolong’ the message (“remember when they said ...”) and is essential for kid-wrangling (chaperoning) at the beginning and end of the field programs.
- KISS – “Keep It Simple Stupid” – it is very easy for knowledgeable instructors to start talking about the exceptions, as they are just introducing the rules. The time for more information comes in the future. Remember “you have to walk before you can run.”
- Lighten up. Some instructors are tense when teaching younger students. Remember to make it fun.

#### 5. FUTURE PROGRAM GOALS

AAI is hoping to expand our youth avalanche education offerings. In the future, we would like to add refresher courses at the middle school and high school level. This will allow continued participation in avalanche education by students traveling in the mountains.

We would also like to continue to hone the course progression so the message becomes more consistent throughout the courses. We will continue to use new and up-to-date materials on these courses.

We are also planning to collect data before and after courses to better understand our audience, their level of knowledge before the program, as well as what they have gained during the program.

## CONCLUSION

Overall, AAI's youth avalanche education program has been a success. Over the course of 10 years, we have educated over 1500 students. We have expanded the program from just working with Jackson Hole High School students, to working with students ages 10-18, in a variety of settings. Students in Jackson, WY have easy access to avalanche terrain. Many of these students may have no knowledge or understanding of the risks involved in traveling in this terrain without these programs.

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