

# Snowboarding and Skiing



## PURPOSE

To help your Cadets learn the basics of boarding and skiing equipment, technique and planning. Through their work on this badge, Cadets will discover additional God-given abilities as well as gain a deeper appreciation for God's winter creation.

## LEARNING

1. The right apparel is essential and should not to be taken lightly. Not being dressed for winter conditions can be uncomfortable at least and extremely dangerous at worst. Those who are excited about hitting the trail or the slopes often forget the hazards of cold and wet (perspiration) — a dangerous combination. Here are five basic articles of clothing required for winter sports. Note: Emphasis should always be given to apparel that is loose or flexible as freedom of movement is imperative.

- Hat — Wool stocking cap to cover ears and forehead. Wool is recommended for soaking up sweat and keeping sweat out of the eyes.
- Tops and shirts — Lightness and the ability to let moisture evaporate is important. A cotton T-shirt covered by a long sleeve cotton turtleneck and then a sweater is recommended. In extreme cold a wind breaker should be added, and in mild conditions the sweater can be eliminated.

The downhill skier or snowboarder usually dresses more warmly than the cross-country skier because he doesn't produce as much body heat. He would usually wear a parka in addition to the warm sweater and other items worn by the cross-country skier.

- Gloves — Cotton work gloves are usually best for cross-country skiing. For cold weather, snowboarding, or downhill skiing, warm waterproof gloves should be worn.
- Knickers or pants — Knickers are the traditional cross-country ski pants. They allow the most freedom of movement. Along with knee socks your legs won't scuff each other as they pass each other in stride. Cotton pants (denims) are the next best option. No baggy bottoms as they impair leg movement when striding. Add long underwear in extreme cold weather.

Downhill skiing and boarding again require warmer gear, and so insulated ski pants are appropriate.

- Socks — Wear two pair, with the outer pair of wool. Wool is warm and insulates even when wet. A cotton pair underneath. Cotton breaths and absorbs sweat. You may want to add plastic freezer

bags over your socks if you expect extreme cold or wet conditions. Cold feet is one of the biggest complaints in cross-country skiing. To avoid the problem ...

- Gaiters — They fit over the top of your boot at the ankle and prevent snow from going down your boot.
- Put a pair of old tight-fitting socks over your boots.
- Keep your boots polished and treated with waterproofing compound.

Socks for downhill skiers and boarders are the same, but in addition they wear special boots, made to work with their skis or boards.

2. *Hypothermia* — Hypothermia is abnormal heat loss from the body's inner core.

- Heat loss areas: head, torso from armpits to lower ribs, groin, and inside of legs.
- Functions of brain and heart are affected.
- Results: unconsciousness and DEATH.

Wet clothing (whether from sweat, rain, wet snow, etc.) can speed hypothermia. Hypothermia victims succumb most often between 40°F and 50°F temperature.

Get into dry clothing or a sleeping bag as quickly as possible, stay out of wind, warm victims as quickly as possible through contact with other bodies.

## Snowboarding

1. You'll need clothing that keeps you warm and dry, a pair of snowboarding boots, and some safety gear. These are the basics every snowboarder should have:

- A snowboard leash, to prevent runaway boards
- Snow pants or a snow bib, which is basically a pair of snow overalls
- A snow coat, not too loosely fit
- Snowboarding boots, which are specially designed to strap easily into the snowboard
- A helmet, to protect your head
- Thermal layers, such as long johns and wool socks
- Snow gloves with gauntlet cuffs
- Goggles to reduce glare and protect your eyes.

Check everything for fit. In particular, wear your helmet and boots properly. The helmet shouldn't move around on your head, or ride low on your eyes. It should be snug but not too tight. Boots should be tight but comfortable.

- If your boots are too big, you can end up over-tightening them and losing circulation in your feet.
- Wear thick socks that come up past the top of your boots to prevent the boots (or your pants) from chafing around your ankles.

a. There are two common types of bindings — strap bindings and speed entry bindings.

- Strap bindings are the most commonly seen snowboard bindings. They consist of a base for the bottom of your boot, and a set of secure synthetic straps (usually two straps) that are tightened over the boot to lock it into the base.
  - Speed entry (or convenience entry) bindings look similar to strap bindings, except the back of the boot base (called the “highback”) has a hinge that allows you to slide your foot in quickly. Speed entry bindings are common, but tend to be a bit more expensive than strap bindings.
- b. Most snowboards are designed for general use, but if you’re more interested in a specific aspect of the sport, there are specialized boards.
- All-mountain or freeride boards are the standard snowboards. They are best for beginners. They’re great for speed and carving (turning) on a downhill slope, but still short and wide enough to excel at tricks, spins, and catching big air, as well.
  - Freestyle or technical boards are a little bit shorter and wider than all-mountain models. They’re more flexible as well, which gives them superior control for precise movements. Freestyle boards are preferred for riding pipes and technical courses.
  - Alpine or carve boards are longer, thinner, and less flexible than the other two types. They’re built for high speed and smooth carving down the side of the mountain. If a fast downhill experience is what you’re after, consider an alpine board.

Consider your height and weight. Even more important than the type of board you buy is the fit of the board to your body. As a general rule of thumb, your board should come up to about the height of your chin or nose when stood on end.

If you’re on the heavy side, pick a board that’s stiffer and less flexible to better distribute your weight. Lighter boarders should choose a more flexible board to maximize the amount of control they have over it. Be sure the board you choose is wide enough so that your feet don’t jut off the sides of the board. Even a bit of heel sticking out could catch on the snow and mess up your ride.

## 2. Safety rules:

- Board with a buddy: It’s never a good idea to go out on your own. Having a friend nearby to get help in case of injury or assist you if your equipment breaks is essential.
- Get in shape: Be sure to follow a regular fitness program before heading to the mountains. A basic layer of conditioning will strengthen muscles and build endurance that will help prevent injuries.

- Check your equipment: A bindings check is always a smart move. Roughly half of all injuries are due to improper binding performance. While you’re at it, make sure all of your ski and boarding gear is in tip-top shape.
- Know your limits: Ski or snowboard at your appropriate level. Beginners should avoid advanced runs.
- Warm up: Before you hop from the car to the chairlift, don’t forget to do a little stretching to loosen and warm up your cold muscles. Focus on calves, hamstrings, quadriceps as well as your shoulders.
- Hydrate: When you’re fixated on getting in as many runs as possible, sometimes you forget to stay hydrated. Don’t forget to drink plenty of fluids as the day goes along. Being dehydrated can lead to fatigue.
- Avoid the “one last run” syndrome: You think you’ve got just one more run in you before you call it day. If your legs are feeling heavy, it’s better to make a beeline to the lodge instead of the chairlift.
- If a mishap does occur on the hill, make sure that your body is fully recovered before your next trip up the mountain.

## **Cross Country**

1. There are four special pieces of equipment for cross-country skiing. These items are best chosen with the personal help of a local dealer, but here are some basic guides for choosing these items.

- Skis — There is an innumerable variety of cross-country skis, but there are some basic design concepts that should be remembered: flex, weight, length and width.

Note: There is one fundamental difference in cross-country skis: wax and non-wax surfaces. For beginners it is advisable to use non-wax skis as it will simplify your experience.

- Bindings — two types
  - 1) By far the most popular is the toe clip. A hinged device snaps down over an extension on the toe of your boot. The heel is free to rise off the ski.
  - 2) The heel cable binding is typically used by mountaineering patrols because of its ability to clamp the heel down if necessary for Alpine type skiing.
- Poles
- Boots — They should fit like your street shoes. They should be snug with your two pair of socks on.

Note: It is wise to rent skis, boots, and poles for a trial. Most dealers rent at a very modest cost.

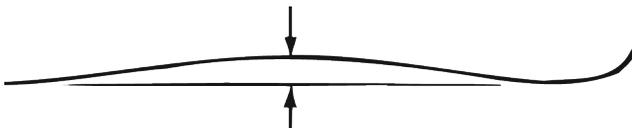
- a. Two basic types of skis are touring and racing skis.
  - Touring ski — Slightly wider than most, heavier, stiffer. Made for the long tour. Good

for beginners because they provide extra stability.

- Light touring ski — Narrow, light weight, average flexibility. This is the most popular cross-country ski.
  - Racing ski — Super light (under 3.5 pounds/ 1.6 Kg.) narrow, fragile. Inexperienced skiers will break this ski very easily.
- b. *Flex* is the ability of the ski to flatten properly under the weight of the skier.
- Camber* is the rise in the middle of the ski.
- c. *Length of poles* — Don't use Alpine skiing poles. Cross-country ski poles are longer. Standing on the floor the poles should just reach up to your armpits. Cross-country ski poles also have a curved tip for help in propelling the skier.

*Length of skis* — Set your skis on end and stand along side them. Reach up with one arm and your ski should come to your wrist. This is the way to measure for proper length. The width and weight of your skis are determined by the type of skiing you're doing.

*Flex of skis* — All cross-country skis have a camber or a rise in the middle. This area under your foot must be flattened to the snow in order for you to kick back and propel yourself forward. Your weight will determine the force it takes to flex the ski. Here is a simple test to see if a ski has the right flex for you. Put the skis on a smooth hard surface and stand on them in your binding. If you can slip a single piece of paper under the area below your feet, the skis are just right. If you can't slip a piece of paper under, then they are too soft. If you can slip several pieces of paper together under the ski the flex is too hard. In general you are better off with skis that are too soft rather than hard.



2. There are some basic safety tips for ski touring, but most of all it takes some good common sense.
- Dress for cold and shed clothing if needed.
  - Carry a small first aid kit.
  - Travel with at least one other person.
  - Bring high energy snacks along such as candy bars and peanuts.
  - Know your limitations. Don't attempt steep hills or untraveled or unmarked trails. Novice skiers should stay on short courses. When touring your first few times, go with an accomplished skier who can aid you.

## Downhill

1. The Cadet should list these items
  - a. Skis — generally wider and heavier than cross-country skis, they should be as long as the skier is tall.
  - b. Poles — the poles should be straight, from the point to the grip. The height of the pole should reach from the ground to the skier's bottom rib.
  - c. Boots — downhill ski boots consist of two parts — a rigid plastic outer shell and an inner boot, often consisting of foam material. A skier's boots should be comfortable, but with a snug fit.
  - d. Bindings — the purpose of binding is twofold. First, it fastens at the heel and toe, holding the boot to the ski during the ski run. Second, and very important, it releases the boot from the ski in case the skier falls, thereby serving to prevent serious injury to feet and ankles. The bindings must be made to fit and operate with the skis and boots.
2. Check your Cadet's memory on the downhill skiing rules.

## DOING

### Snowboarding

1. Self-explanatory
2. Snowboarding is very different than skiing. Your feet are fixed together on a single board and you're standing sideways and your direction is controlled by moving your weight from your toes to your heels and using your body to drive you through this transition. Unless you are familiar with board sports like skating, surfing or wakeboarding the body position and stance will feel unusual at first.

There is no real substitute for getting lessons from a qualified instructor, but with the help of a little internet animation the beginner can understand the basic techniques of snowboarding. Use the links under each heading for animated demonstrations of the five basic snowboarding techniques.

- Straight Running or Gliding

**Link:** <http://www.abc-of-snowboarding.com/learn-snowboarding/gliding.asp>

Begin on an almost flat section of snow. Standing with your board directly down the fall-line of the hill. Let the board slide forward down the hill until it comes to a stop.

This will help you find your balance and experience the sensation of moving on your snowboard.

- Side Slipping

**Links:**

**Heelside:** <http://www.abc-of-snowboarding.com/learn-snowboarding/sideslipping-heelside.asp>

**Toeside:** <http://www.abc-of-snowboarding.com/learn-snowboarding/sideslipping-toeside.asp>

With your board across the fall line you should be able to stand up and remain in a stationary position by digging your edge into the side of the hill. If you are facing down the hill, on your heel edge, lift your toes up and bend your knees slightly to push your edge into the hill and find a balance point. On your toe edge, facing up the hill, put more weight on your toes and bend your knees again.

To release your edge and start sliding sideways down the hill simply stand up slightly and move the weight off your heel or toe edge. The board should start to slide down the hill and you can control your stop by once again flexing your knees and adding pressure to your edge.

This will help you to understand edge control and control your speed. Next you will need to learn to control your direction.

- Falling Leaf

**Link:** <http://www.abc-of-snowboarding.com/learn-snowboarding/falling-leaf.asp>

Once you have mastered the control of your speed you will be able to advance your side slip to allow you to change direction. As you stand up and release your edge move your body weight so that it is over your front foot and look forward over the nose of your board. Your snowboard will slide down and across the hill, traversing the fall-line. To stop this return your weight so that it is even across both feet and bend your knees and pressure your edge into the hill just as you did in a side slip. Once you have come to a stop. Stand up again and shift your weight backwards onto your back foot and turn your head to face your tail. In this way you should start to move back across the hill in the direction you have just come from.

If you repeat this process you can traverse back-and-forth across the slope like a “falling leaf.” You now have control of your speed and direction of travel and are ready to start learning to turn your snowboard.

- “J” Turns or Garlands

**Link:** <http://www.abc-of-snowboarding.com/learn-snowboarding/garlands.asp>

Before you change from one edge to the other some instructors like to add this intermediate level. J turns are easiest on your toe edge. Begin once again with a side slip and then shift your weight forward so that the snowboard begins to traverse the hill like in the falling leaf stage. If you then add more weight to your front foot and relax your edge grip completely by standing up almost straight the board will move from its edge onto a flat base just like in the straight running stage. As you run, on a flat base down the fall-line, you should have your

weight neutrally balanced across both feet and be standing tall.

Finish the turn by shifting your weight back to your front foot, sinking down and allowing your edge to bite into the hill. To come to a stop sink back down low and bring your weight to a neutral position, evenly distributed across both feet. Try repeating the same process on your heel side. You should now be able to control your direction and speed across and down the fall line.

- Traversing

**Links:**

**Heelside:** <http://www.abc-of-snowboarding.com/learn-snowboarding/traversing-heelside.asp>

**Toeside:** <http://www.abc-of-snowboarding.com/learn-snowboarding/traversing-toeside.asp>

Traversing allows you to move across the fall line while descending gradually. It is actually riding diagonally across the slope, taking you slowly from one side of the slope to the other. You can do traverses in two ways, depending on the position you make and the board edge that you use. One of them is Traversing - Heelside. You will make use of your downhill edge in order to control your speed.

- 1) In traversing using the heel edge, look towards the direction where you want to go. This is one of the most crucial things that you should do when traversing. Spread your arms to help in keeping your balance.
- 2) Then, turn your head and upper body towards the direction you wish to travel to. Shift more weight on your leading foot and move together with your other foot. Remember to keep the board angled downhill but only slightly.
- 3) Return your Snowboard to its original position across the fall line. Get ready to move to the other side of the slope. Look towards the direction where you want to go.
- 4) Just like in Step 2, turn your head and upper body towards the direction you wish to travel to. Shift more weight on your leading foot and move together with your other foot. Remember to keep the board angled downhill but only slightly.

3. Self-explanatory

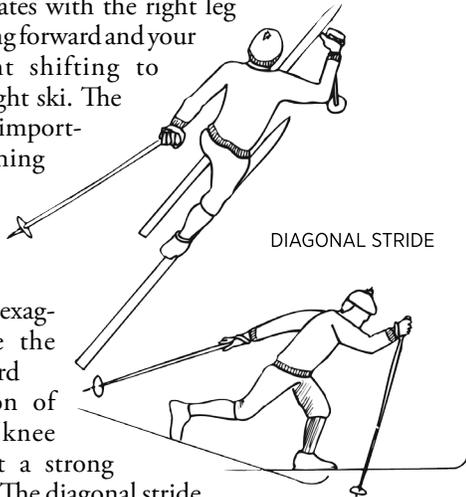
### **Cross Country**

1. Technique

It is highly recommended that you use resources in your local library or find a qualified instructor to guide you in the technique. The verbal explanations here are only meant to provide you with basic concepts. Only the photos in a book or an instructor can help you judge proper technique.

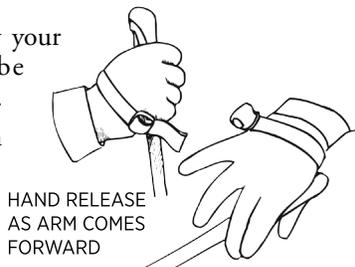
Three types of terrain determine your technique: flat, uphill, and downhill.

- a. For flat terrain — The basic stride is called the *diagonal stride*: Drive your left leg forward along with your right arm. Your left arm will be pushing backward. Emphasize the forward motion of the left knee while you shift your weight to the left ski. This will cause you to achieve a strong glide. Your right leg will extend behind you and the tail of the right ski will rise in the air. Then the motion alternates with the right leg coming forward and your weight shifting to the right ski. The most important thing to keep in mind is to exaggerate the forward motion of each knee to get a strong glide. The diagonal stride is closely related to walking as arms and legs alternate.



Here is how your hand should be gripping the pole.

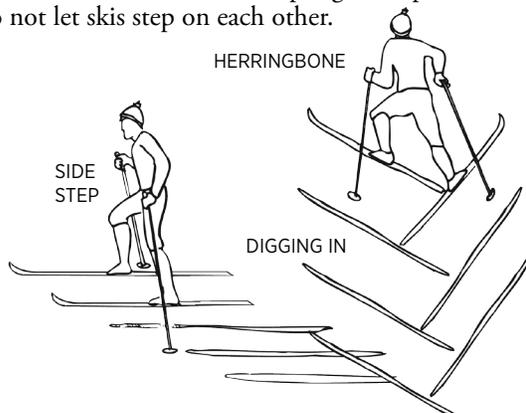
As your arm finishes its swing behind you during the diagonal



stride, your hand should release from the pole and the strap should hold the position as your arm comes forward again. Other flat terrain techniques that should be learned are double poling and skating. Check your library for resources.

- b. To move uphill

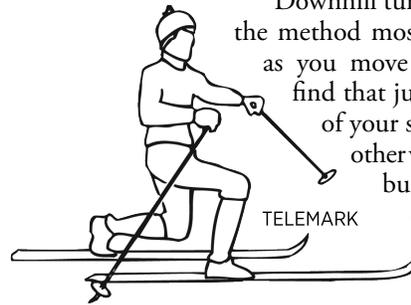
Moderate grade — the *herringbone* method as illustrated: Make sure to keep legs far apart and do not let skis step on each other.



Steep grade — the *side step* method as illustrated. Keep the uphill edges of your skis dug into the snow as you lean slightly into the hill. Your skis never cross.

- c. Slowing yourself on downhill — on most trails especially in wooded areas the trail is too narrow to snowplow (see directions under downhill skiing) and your best alternative is to sit back on your skis and drag your gloves and if that doesn't slow you enough, sit down between your skis. This technique is known as *derriering*.

Downhill turns — The *telemark* is the method most often used to turn as you move downhill. You may find that just a gradual stepping of your skis to one side or the other will accomplish a turn, but the telemark is more effective on sharper turns. The telemark demands some balance. Extend one leg



forward, bending the knee so that the other leg extends out behind with the knee almost touching the ski. See illustration. Steer the forward ski where you want to go, keeping your weight equally distributed on both skis, and the trailing ski will follow. Lift your arms up for balance.

2. Self-explanatory
3. Self-explanatory

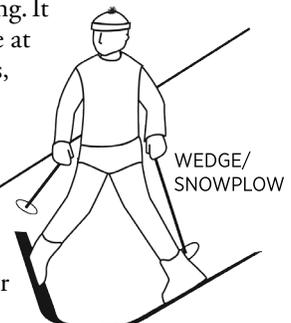
### Downhill

1. It takes little effort to point your skis downhill and go — but what you have to be able to do is go with control. To have fun and be safe (as well as providing for the safety of others on the slope), the skier must become competent at the basic techniques shown here.

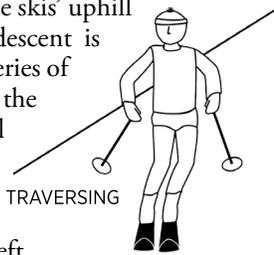
On a steep uphill grade, the side step method as illustrated in the cross-country section is helpful if no chair lift or tow rope is available. Keep the uphill edges of your skis dug into the snow as you lean slightly into the hill. Your skis never cross.

The *wedge* or *snowplow* technique is the basic method of slowing, turning, or stopping. It

allows the new skier to move at slower speeds, make easy turns, and stop. This gives the novice a chance to get a feel for the sport. The skier pushes the tails of the skis out, bringing the tips together. The more the outward force (wider “V”) the slower the descent.

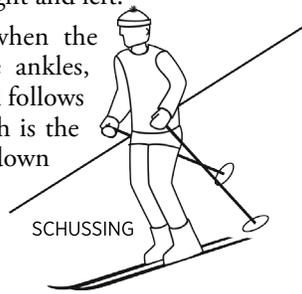


*Traversing* the hill is skiing at an angle to the fall line. The fall line is the most direct route down the slope. Traversing allows the skier to descend the slope at a controlled rate. The lower part of the skier's body is tilted toward the slope, so the skis' uphill edges grip the snow. The descent is accomplished by making a series of traverses back and forth across the slope each on a slight downhill grade. In order to switch the direction of the traverse it is obvious that there must be turns — both right and left.



TRAVERSING

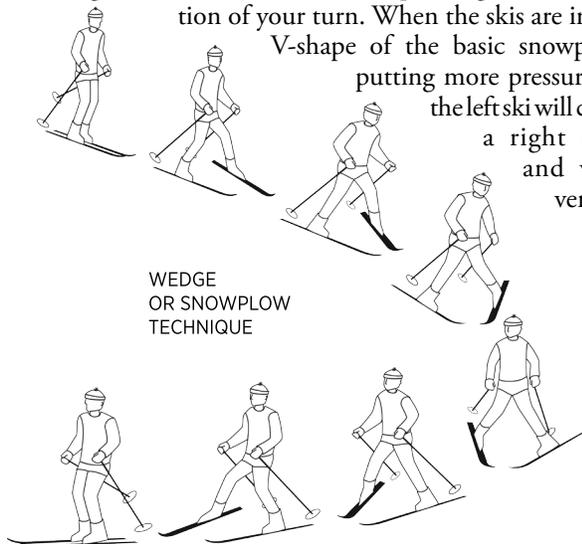
Schussing is when the skier bends at the ankles, knees, and hips and follows the “fall line” which is the most direct route down the slope.



SCHUSSING

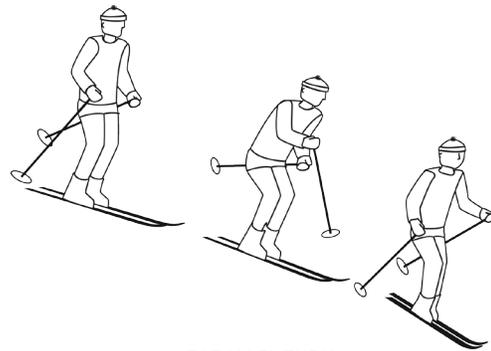
There are two basic techniques of turning. One is using the *snowplow* (suggested for beginners), but the preferred method is the parallel turn because it doesn't necessitate the maneuvering of the skis to the wedge shape.

The snowplow turn requires that you shift your weight to one ski or the other depending on the direction of your turn. When the skis are in the V-shape of the basic snowplow, putting more pressure on the left ski will cause a right turn and vice-versa.

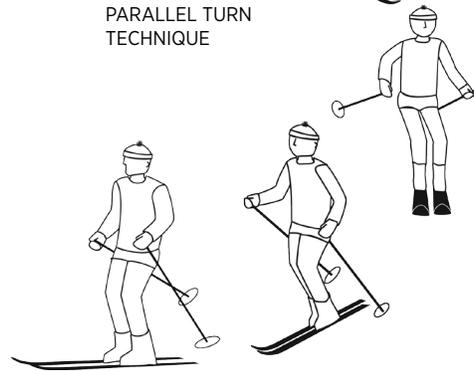


WEDGE OR SNOWPLOW TECHNIQUE

The parallel *turn* requires that the skier whose skis are close together and parallel shifts their weight from the left edges of both skis to the right edges of both skis to make a right turn and vice-versa.



PARALLEL TURN TECHNIQUE



Having the knees bent forward (and to the uphill side if traversing) and having the top half of your body relaxed are the keys to downhill skiing. You should use your ski poles very little. They are helpful in maintaining your balance or to assist you in skiing uphill.

2. When using the tow rope keep both feet together and put your poles in one hand. With the other hand take a firm grip on the rope. Pay attention to the skier in front of you, in case he falls. When you get up to the top of the hill, move out of the way as quickly as possible.

When using the chair lift, listen to the person in charge of the chair lift. Keep your feet together and put your poles in one hand, with your other hand grab the chair lift hand rail and sit down. Remain sitting still in the chair lift until you reach the top of the hill and must get out of it. Once you are off the chair lift, move out of the way as quickly as possible.

3. Self-explanatory

### OTHER SUGGESTIONS

1. To use this merit badge as a cadre
  - a. Each Cadet should do all the questions under the “Learning” section and #1 and #2 under the “Doing” section.
  - b. The Cadets can work together planning and doing the outing. This will give the Cadets the opportunity to learn an exciting activity together that they can enjoy throughout their life.
2. Most ski resorts offer boarding and skiing lessons for kids and beginners. We recommend taking lessons if possible.