Downhill (Alpine) Skiing Option

Troop 344 and 9344
Pemberville, OH

Snow Sports Merit Badge

Snow Sports

1. Do the following:
   a. Explain to your counselor the hazards you are most likely to encounter while participating in snow sport activities, and what you should do to anticipate, help prevent, mitigate, and respond to these hazards.
   b. Discuss first aid and prevention for the types of injuries or illnesses that could occur while participating in snow sports, including hypothermia, frostbite, shock, dehydration, sunburn, fractures, bruises, sprains, and strains. Tell how to apply splints.
2. Do the following:
   a. Explain why every snow sport participant should be prepared to render first aid in the event of an accident.
   b. Explain the procedure used to report an accident to the local ski patrol or local emergency personnel.
3. Explain the international trail-marking system.
4. Discuss the importance of strength, endurance, and flexibility in snow sports. Demonstrate exercises and activities you can do to get fit for the option you choose in requirement 7.
5. Present yourself properly clothed and equipped for the option you choose in requirement 7. Discuss how the clothing you have chosen will help keep you warm and protected.

Snow Sports

6. Do EACH of the following:
   a. Tell the meaning of the Your Responsibility Code for skiers, snow-boarders, and snowshoers. Explain why each rider must follow this code.
   b. Explain the Smart Style safety program. Tell why it is important and how it applies to participants at snow sport venues in terrain parks and pipes.
   c. Explain the precautions pertaining to avalanche safety, including the responsibility of individuals regarding avalanche safety.
7. Complete ALL of the requirements for ONE of the following options: downhill (Alpine) skiing OR cross-country (Nordic) OR snowboarding OR snowshoeing.

Snow Sports

7. Complete all of the requirements for **Downhill (Alpine) Skiing**
   a. Show how to use and maintain your own release bindings and explain the use of two others. Explain the international DIN standard and what it means to skiers.
   b. Explain the American Teaching System and a basic snow-skiing progression.
   c. Discuss the five types of Alpine skis. Demonstrate two ways to carry skis and poles safely and easily.
   d. Demonstrate how to ride one kind of lift and explain how to ride two others.
   e. On a gentle slope, demonstrate some of the beginning maneuvers learned in skiing. Include the straight run, gliding wedge, wedge stop, sidestep, and herringbone maneuvers.
   f. On slightly steeper terrain, show linked wedge turns.
   g. On a moderate slope, demonstrate five to 10 christies.
   h. Make a controlled run down an intermediate slope and demonstrate the following:
      1. Short-, medium-, and long-radius parallel turns
      2. A sideslip and safety (hockey) stop to each side
      3. Traverse across a slope
   i. Demonstrate the ability to ski in varied conditions, including changes in pitch, snow conditions, and moguls. Maintain your balance and ability to turn.
   j. Name the major ski organizations in the United States and explain their functions.

Snow Sports Merit Badge – Downhill Option

Requirement 1

Do the following:

a. Explain to your counselor the hazards you are most likely to encounter while participating in snow sport activities, and what you should do to anticipate, help prevent, mitigate, and respond to these hazards.

b. Discuss first aid and prevention for the types of injuries or illnesses that could occur while participating in snow sports, including hypothermia, frostbite, shock, dehydration, sunburn, fractures, bruises, sprains, and strains. Tell how to apply splints.

Winter Sports Safety

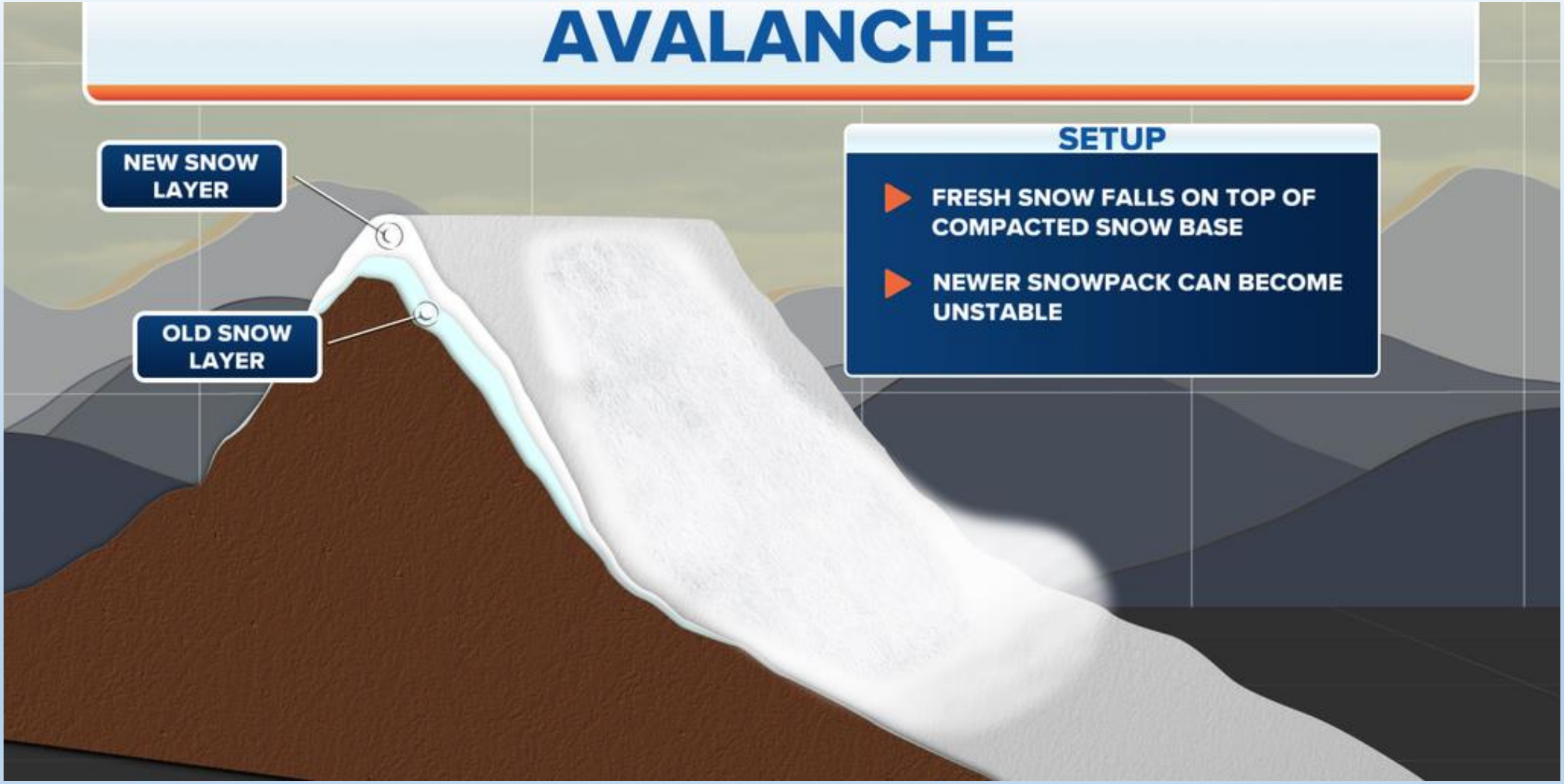
Be sure your winter outdoor activities always follow these guidelines:

1. All winter activities must be supervised by mature and conscientious adults (at least one of whom must be age 21 or older) who understand and knowingly accept responsibility for the well-being and safety of the youth in their care.
2. Winter sports activities embody intrinsic hazards that vary from sport to sport. Participants should be aware of the potential hazards of any winter sport before engaging in it.
3. Appropriate personal protective equipment is required for all activities. The use of helmets is required for the following activities: downhill skiing, snowboarding and operating snowmobiles (requires full face helmets).

Snow Sport Hazards - Avalanches

- Scouts should be aware of the signs of avalanche-prone areas, such as steep slopes and recent snowfall.
- They should avoid these areas or travel with proper avalanche safety equipment, including a beacon, shovel, and probe.
- Scouts should also learn how to recognize unstable snow conditions and make informed decisions about where and when to ski or snowboard.

Causes of Avalanches



An avalanche occurs when a layer of snow looses its grip on a slope and slides downhill.

Be Aware of Avalanche Conditions

- Most avalanches occur during or just after snowstorms on slopes between 30 and 45 degrees.
- A significant snowfall may result in an unstable snowpack.
- By waiting at least 36 hours after a big snow or wind storm before you go into the mountains will allow for the snow to become more stable and less likely to avalanche.
- Avalanche warnings and special advisories are included on NWS websites and broadcast over NOAA Weather Radio.
- Refer to your local avalanche center for current snowpack conditions!

Avalanche damage

Snow Sport Hazards - Tree Wells

- Tree wells are pits of deep, soft snow that form around tree trunks in winter. As winter snow accumulates, low-hanging tree limbs create a protective canopy, preventing snow from compressing next to the trunk.
- These low-hanging tree branches often hide tree wells, making them hard to spot. It's best to assume any tree is a potential hazard.
- Because the snow is so soft and deep, a skier, snowboarder, hiker, or snowshoer who falls in headfirst usually cannot free themselves. With skis over their heads, they becoming trapped in the snow.
- The situation compounds when dollops of snow collapse off overhead branches or off the tree well walls, further burying the victim. Eventually, people can suffocate in tree wells, a death officially called snow immersion suffocation (SIS).

How to Avoid Tree Wells

- **Avoid skiing in trees.** Skiing inbounds on consolidated, groomed runs pretty much guarantees you won't find tree wells. That said, tree skiing is awesome, and you can do so safely with some of the tips below.
- **Be cautious after a storm.** Most tree well accidents happen after a fresh dump of powder. If you are uncomfortable skiing in powder, stay out of the trees.
- **Ski defensively.** Ski in control when skiing in the trees! If possible, choose a more open forest with room to ski around tree hazards. If it gets tight, slow down.
- **Don't ski alone.** According to researchers, 90 percent of skiers who fall in a tree well can't get out by themselves. Ski with a partner and stay in sight of each other. If you lose sight, try to stay in touch audibly, and check in on each other regularly.

Snow Sport Hazards - Falls and Collisions

- Falls and collisions can cause injuries such as concussions, sprains, strains, fractures, and dislocations.
- Controlling your speed is critical to staying safe in winter sports like skiing and snowboarding
- Know your limits.
  - Start out easy and add difficulty levels as your skills progress
- Learn proper techniques for falling and getting up safely to minimize the risk of injuries.
- Wear appropriate protective gear, such as helmets and padding, and follow the rules and guidelines of the specific snow sport you are participating in.

Snow Sport Hazards – Cold Injuries

- Cold-related injuries include frostbite, hypothermia, muscle sprains and strains, 'snow blindness' and sunburn.
- However, many of the risks can be reduced with planning, adequate preparation and proper equipment.
  - Wear appropriate clothing for a snowy environment
    - Outer layers – water resistant
    - Inner layers – Synthetic and wicking
    - Don’t wear cotton
  - Snow reflects sunlight and it is easy to become sunburned in a snowy environment.
    - Sunscreen should be applied to any exposed skin.
    - Eyes can get sun-damaged as well.
      - Wear polarized lenses

Snow Sport Hazards – Cold Injuries

- Becoming wet increases the risk of hypothermia.
  - Recognize the signs of hypothermia and know how to treat it.
  - Take regular breaks to warm up.
  - Be prepared to change wet/damp clothes or go inside to dry out.
  - If your feet get wet, seek shelter as soon as you can. The skin tissues of wet, cold feet are in danger of freezing (frostbite).
- Seek shelter and medical attention immediately if you or anyone with you has any of the following symptoms:
  - Grey or blue facial skin.
  - Cold, hard and white skin.
  - Numb patches on the skin.
  - Swollen and blistering skin.
  - Uncontrollable shivering, followed by lack of shivering.
  - Loss of physical coordination.
  - Speaking difficulties, such as slurring.
  - Loss of control over the small muscles – for example, the muscles of the fingers.
  - A strong yearning for sleep.

Requirement 1

Do the following:

a. Explain to your counselor the hazards you are most likely to encounter while participating in snow sport activities, and what you should do to anticipate, help prevent, mitigate, and respond to these hazards.

b. Discuss first aid and prevention for the types of injuries or illnesses that could occur while participating in snow sports, including hypothermia, frostbite, shock, dehydration, sunburn, fractures, bruises, sprains, and strains. Tell how to apply splints.

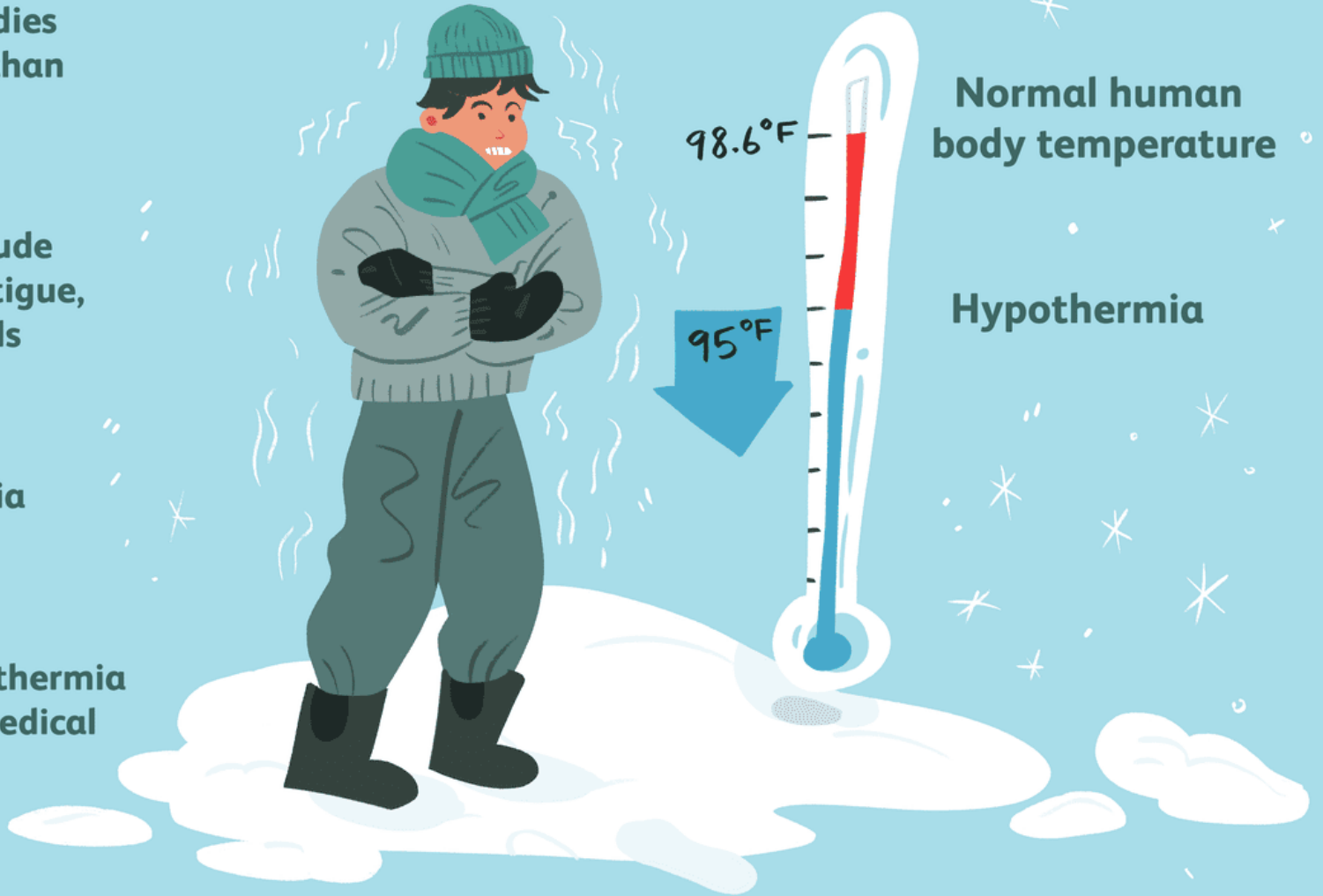
What Is Hypothermia?

Occurs when bodies lose more heat than they produce

Risk factors include cold, alcohol, fatigue, and open wounds

Mild hypothermia is easily treated

Untreated hypothermia can become a medical emergency

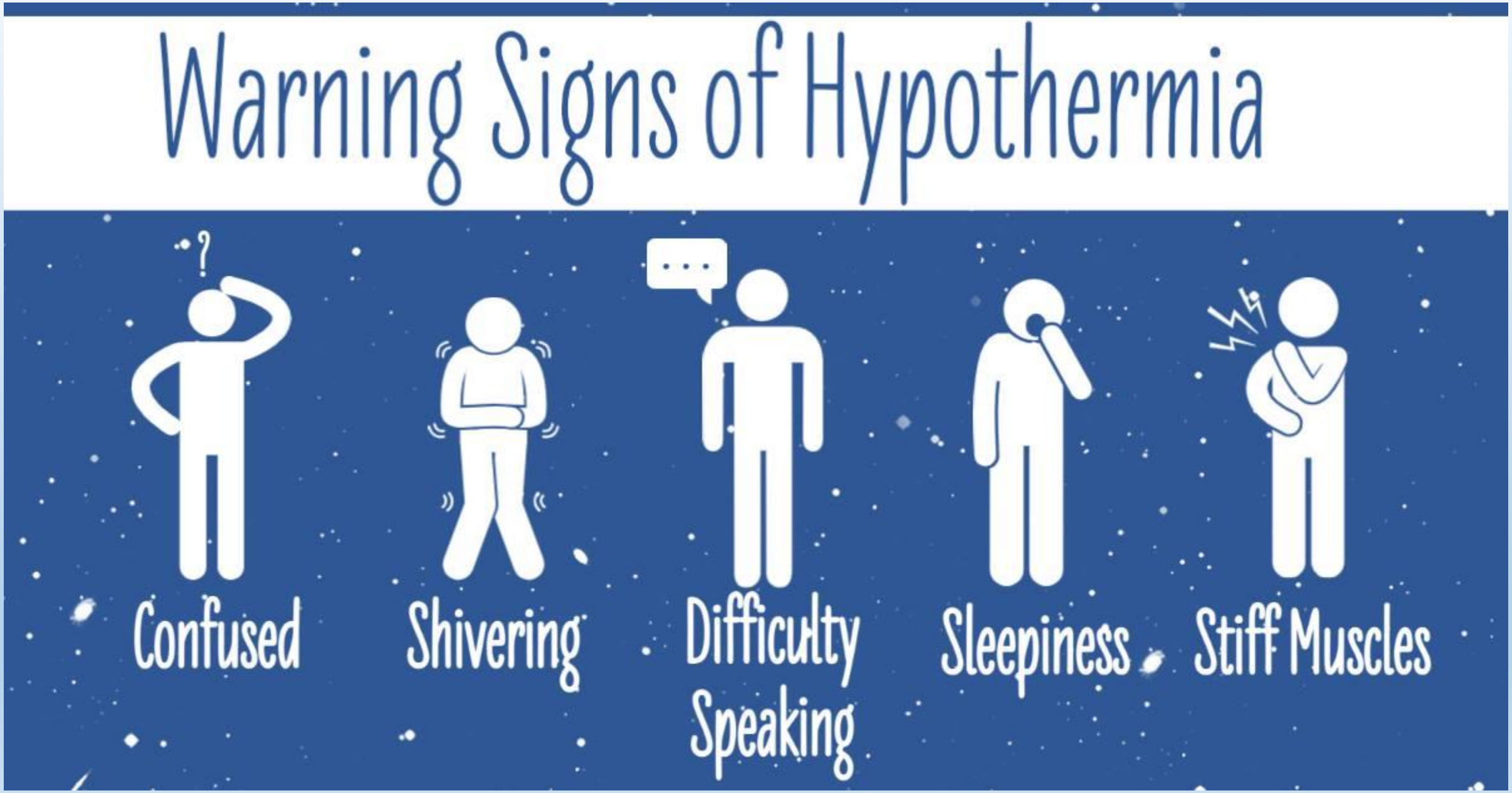


Normal human body temperature

Hypothermia

verywell

It is important to recognize the warning signs of hypothermia and treat it promptly.



WHAT TO DO

Move the person to a warm, dry place

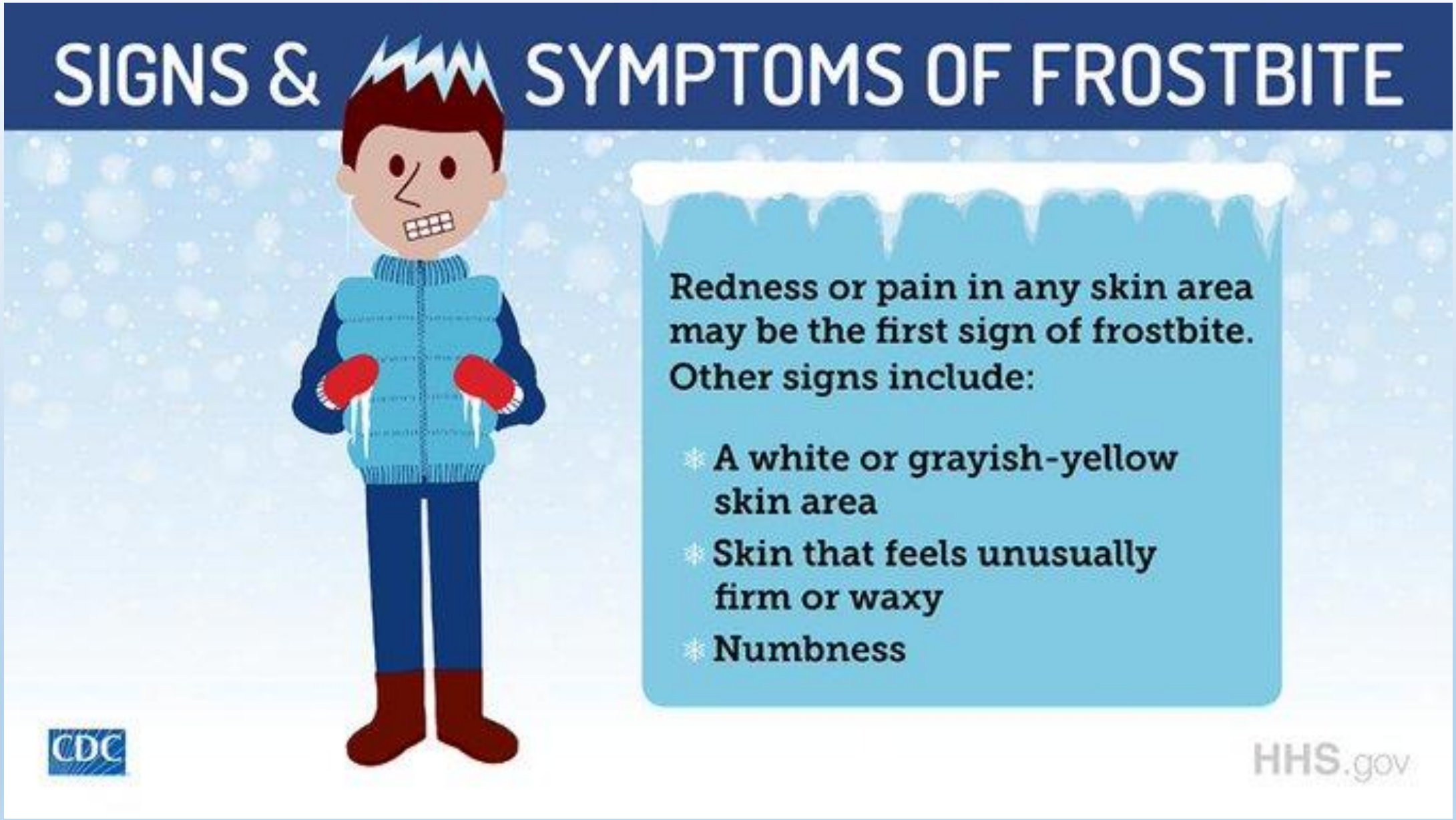
Help patient to lie down

Remove wet clothing & place person in blanket

Cover the head to retain body heat

Give patient warm drinks

Use hot water bottles & heat packs



A victim is often unaware of frostbite because frozen tissue is numb.

Frostbite Treatment

Gradually warm the affected skin is key to treating frostbite:

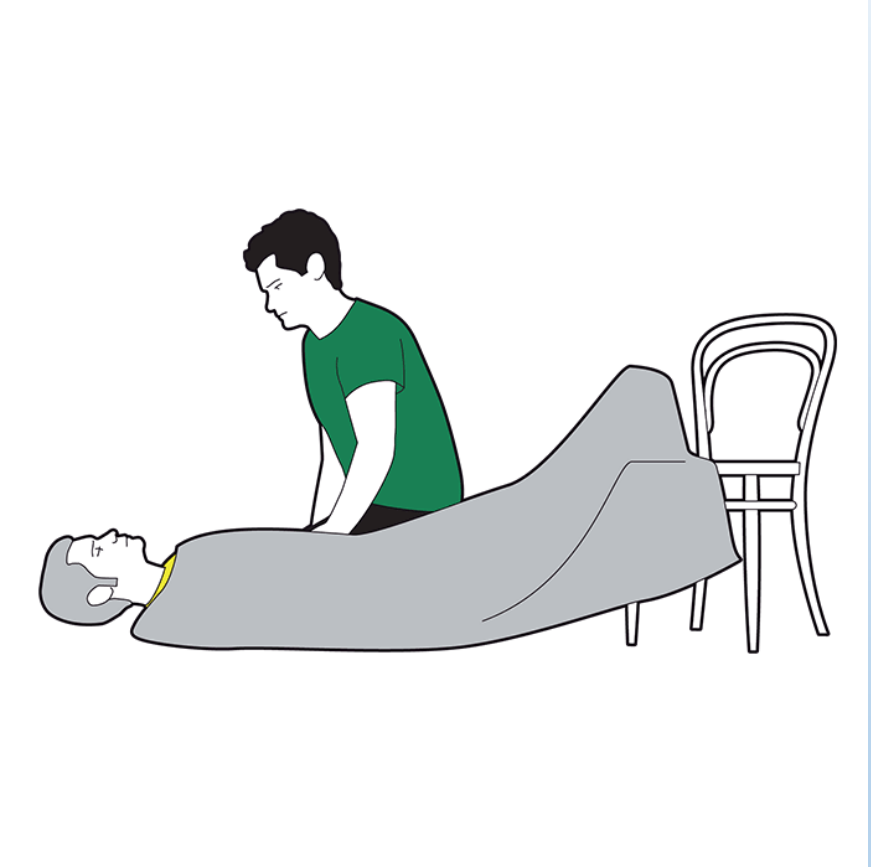
1. **Protect your skin from further exposure.** If you're outside, warm frostbitten hands by tucking them into your armpits. Protect your face, nose or ears by covering the area with dry, gloved hands. Don't rub the affected area and never rub snow on frostbitten skin.
2. **Get out of the cold.** Once you're indoors, remove wet clothes.
3. **Gradually warm frostbitten areas.** Put frostbitten hands or feet in warm water — 104 to 107.6 F. Wrap or cover other areas in a warm blanket. Don't use direct heat, such as a stove, heat lamp, fireplace or heating pad, because these can cause burns before you feel them on your numb skin.
4. **Don't walk on frostbitten feet or toes if possible.** This further damages the tissue.
5. **If there's any chance the affected areas will freeze again, don't thaw them.** If they're already thawed, wrap them up so that they don't become frozen again.
6. **Get emergency medical help.** If numbness or sustained pain remains during warming or if blisters develop, seek medical attention.

Symptoms of Shock

- Shallow and quick breathing.
- Excessive sweating.
- Low blood pressure.
- Experiencing weakness and confusion.
- Skin feeling clammy and cold.
- Feeling anxious.
- Low temperature.
- Nausea and/or vomiting.
- Passing out.
- Rapid pulse.

Shock Treatment

1. **Call 911**
2. **Lay the Person Down, if Possible**
   - Elevate the person's feet about 12 inches unless head, neck, or back is injured or you suspect broken hip or leg bones.
   - Do not raise the person's head.
   - Turn the person on side if they are vomiting or bleeding from the mouth.
3. **Begin CPR, if Necessary**
   - If the person is not breathing or breathing seems dangerously weak:
   - Continue CPR until help arrives or the person wakes up.
4. **Treat Obvious Injuries**
5. **Keep Person Warm and Comfortable**
   - Loosen restrictive clothing.
   - Cover with a coat or blanket.
   - Keep the person still. Do not move the person unless there is danger.
   - Reassure the person.
   - Do not give anything to eat or drink.



DEHYDRATION SYMPTOMS

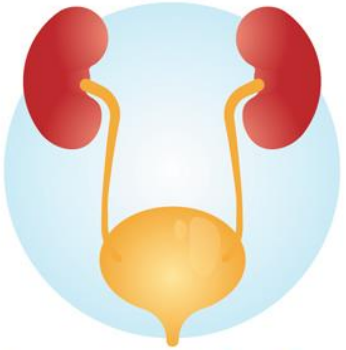
Thirst

Dry Mouth

Rapid Heartbeat

Headache

Dry Skin



Decreased Urination

Dehydration Treatment

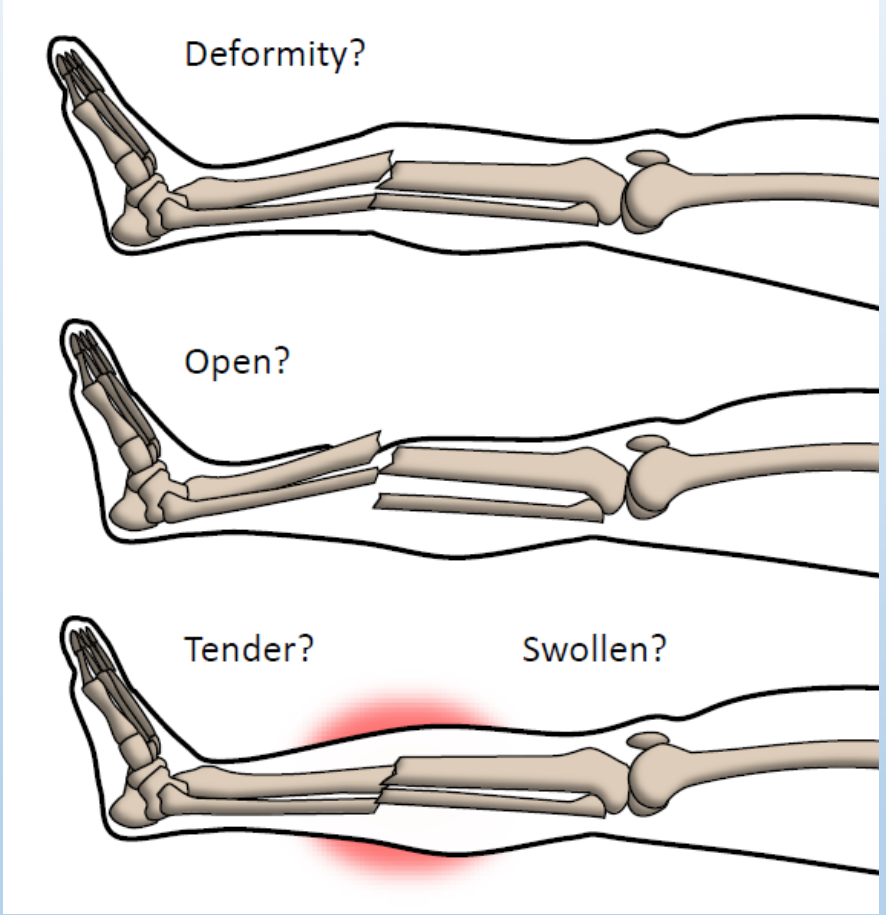
- If you become mildly to moderately dehydrated while working outside or exercising:
  - Stop your activity and rest.
  - Get out of direct sunlight and lie down in a cool spot, such as in the shade or an air-conditioned area.
  - Prop up your feet.
  - Take off any extra clothes.
  - Drink a rehydration drink, water, juice, or sports drink to replace fluids and minerals.

Sunburn

- When you get a sunburn, your skin turns red and hurts.
- If the burn is severe, you can develop swelling and sunburn blisters.
- You may even feel like you have the flu -- feverish, with chills, nausea, headache, and weakness.
- Prevention is the key.
  - It is important to wear sunblock when in the sun, such as at the beach or when skiing.
  - Keep it with you so it can be reapplied throughout the day.

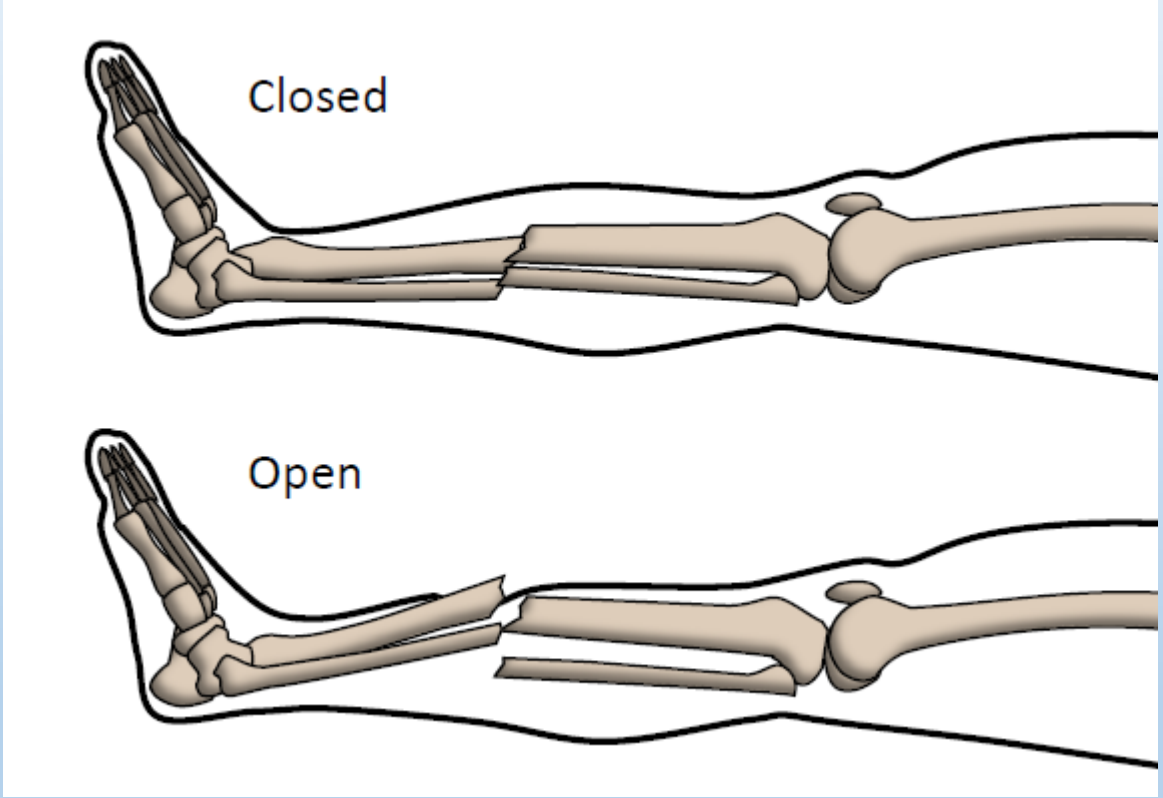
Fractures

- Symptoms of fractures:
  - Look for **DOTS**
    - **D** Deformity – abnormal twist of limb
    - **O** Open Wounds
    - **T** Tenderness on applying pressure
    - **S** Swelling/Severe pain



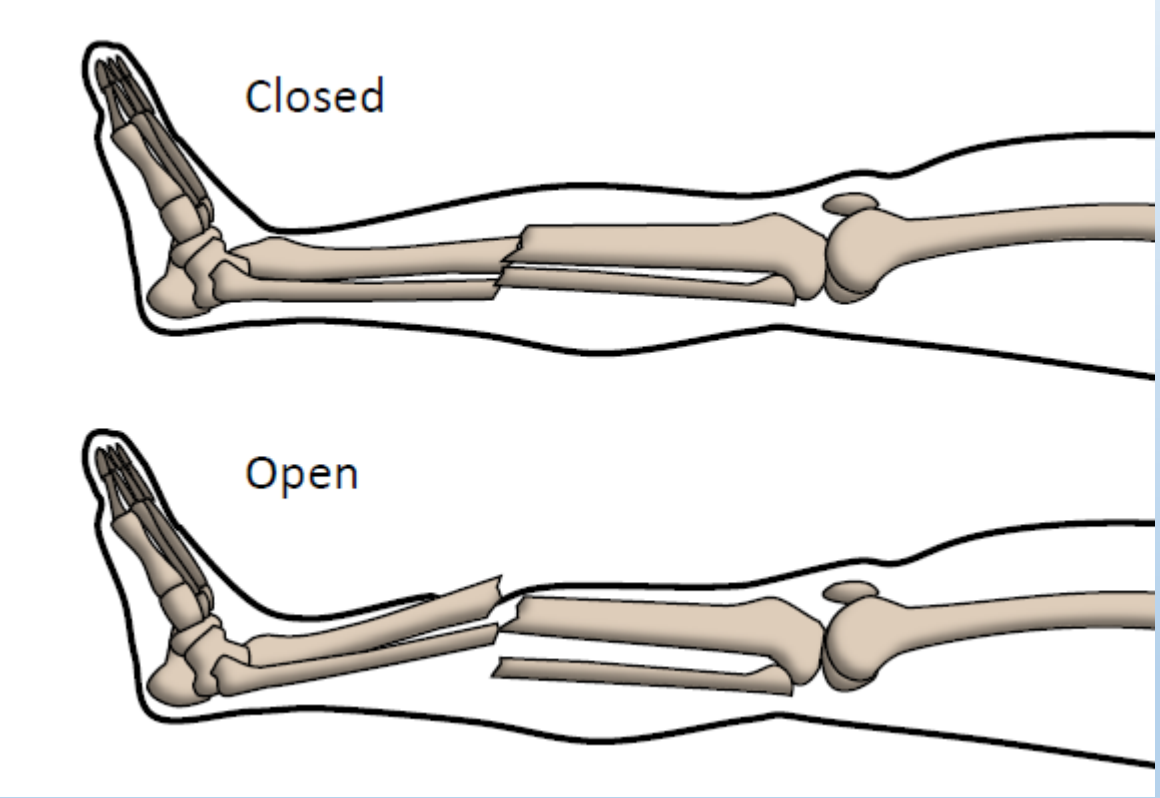
Fractures

- **Broken Bones (Fractures) -Closed**
  - This is when the bone is broken but does not cut through the skin
- **First-Aid**
  - Call 911
  - Treat hurry cases as needed
  - Avoid moving the affected extremity



Fractures

- **Broken Bones (Fractures) -Open**
  - This is when the bone is broken AND cuts through the skin
  - Bone is at high risk of infection
- **First-Aid**
  - Call 911
  - Treat hurry cases as needed
  - Control bleeding by placing sterile gauze around the wound
  - Avoid moving the affected extremity

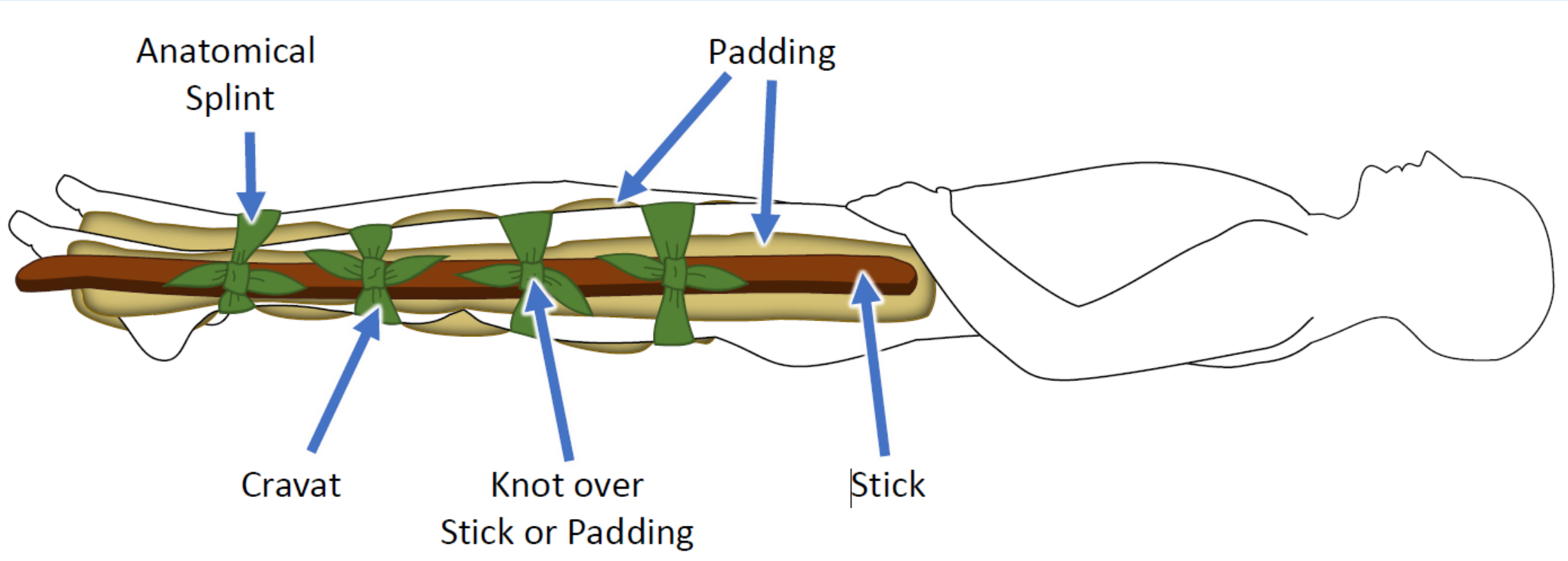


Applying Splints

- **Broken Bones (Fractures) –Splinting**
  - It is best to allow medical providers to stabilize and transport someone with a broken bone to the hospital
  - If trained medical staff is not available and the victim must be moved, you may need to splint the fracture.
  - Goal of splinting is to reduce further damage by reducing movement
- **Applying a Splint**
  1. Find a rigid straight object that is longer than the bone and joint that you are going to support. You are going to be using this as the splint.
  2. Cover any broken skin with a sterile cloth. Pad the splint with softer materials such as cloth.
  3. Tie the splint to the injured limb using tape or rope. Make sure the splint is tight but not so tight that it cuts of blood circulation of the victim. Make sure the splint is applied in a way that prevents the limb from further movement or strain.
  4. If available, place an ice bag over the splinted break area. Do not place it directly on the skin or wound but cover it with cloth.

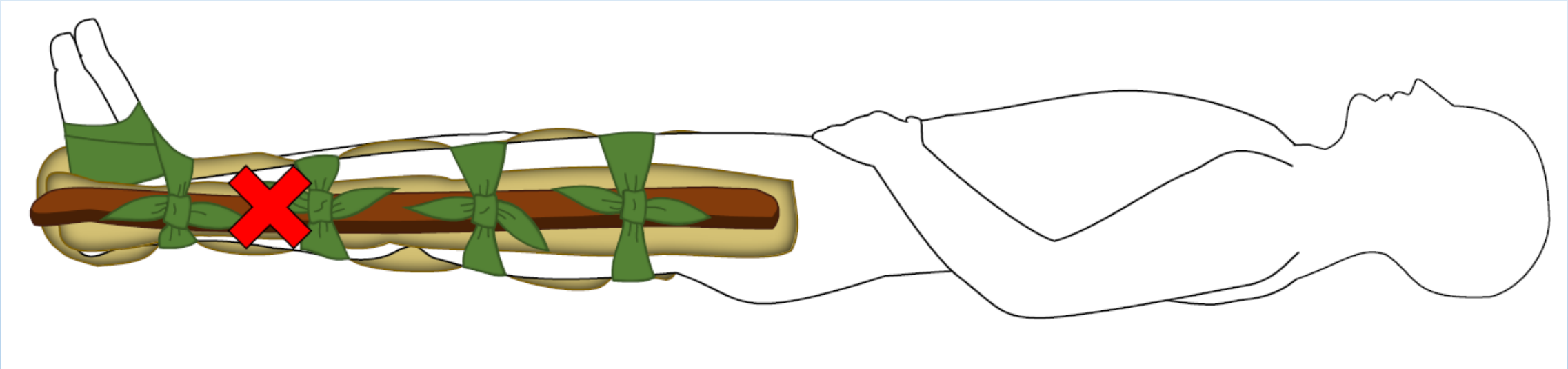
Applying Splints

- Fracture Splinting –Upper Leg



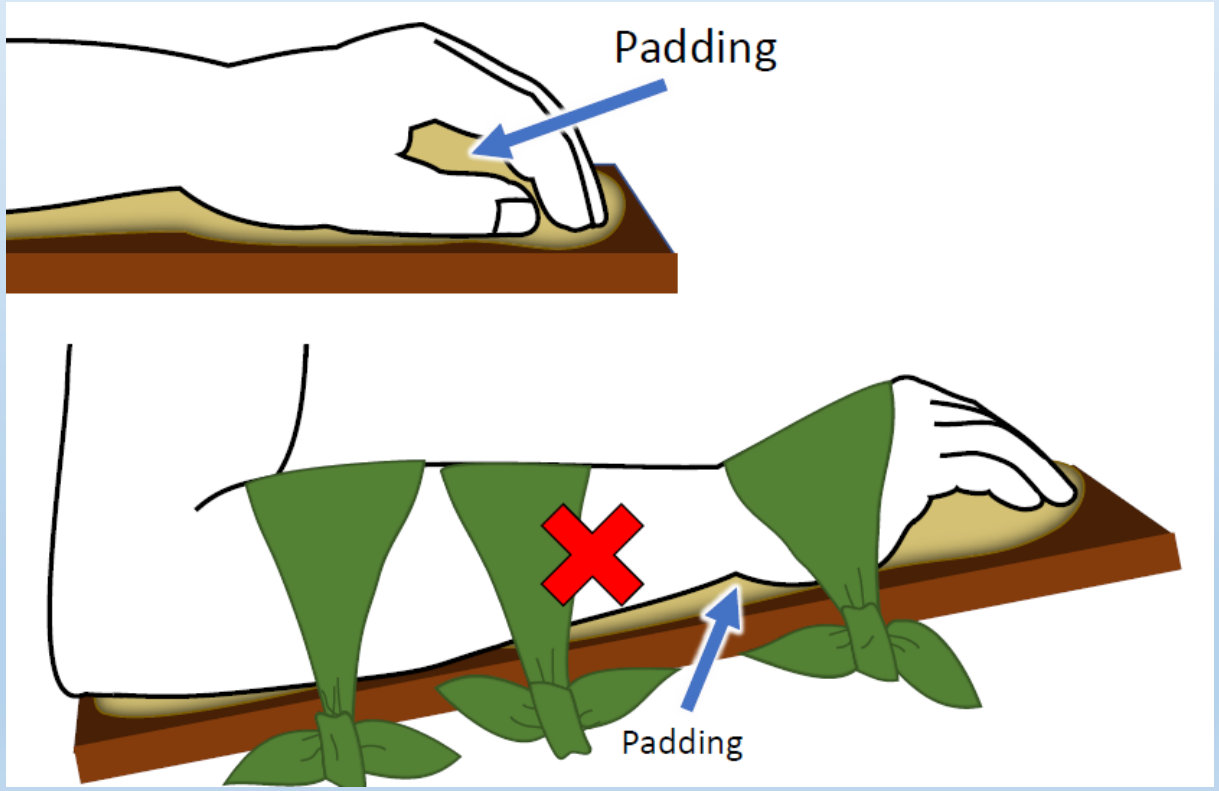
Applying Splints

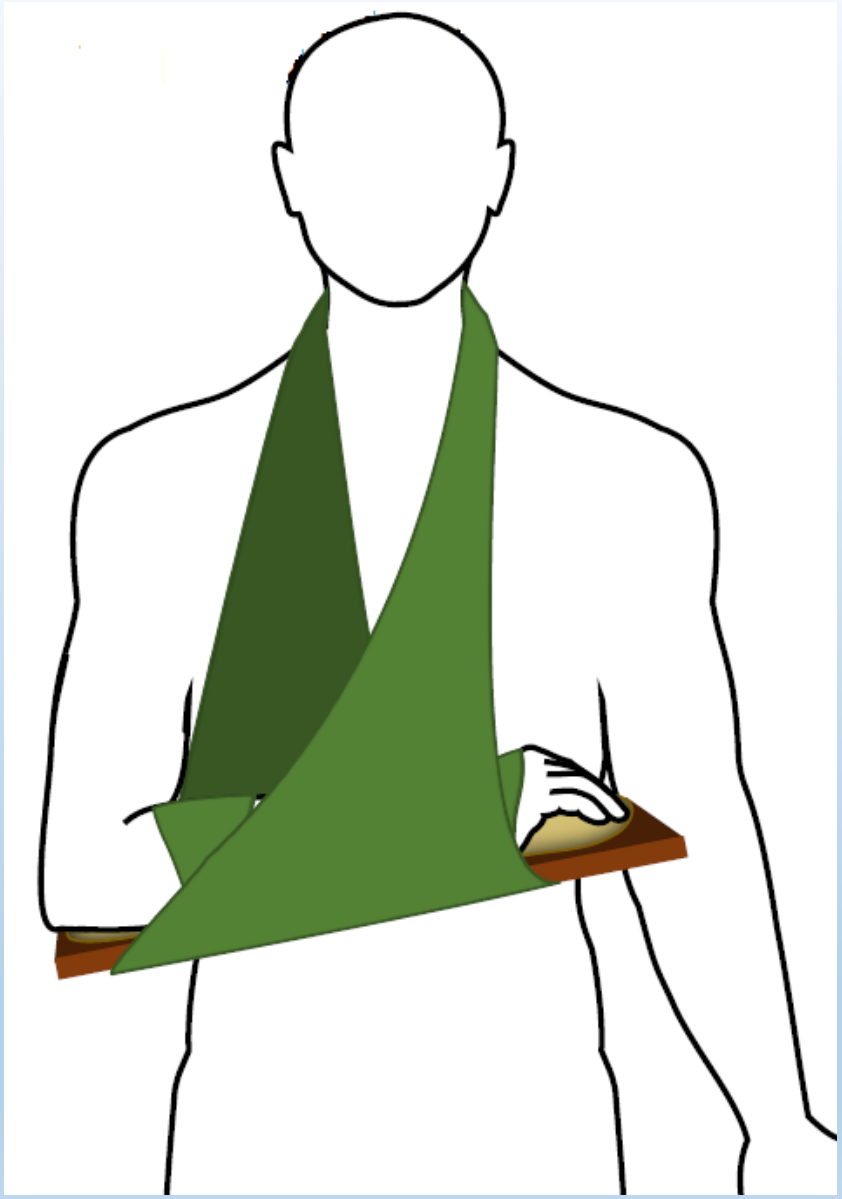
- Fracture Splinting –Lower Leg or Ankle



Applying Splints

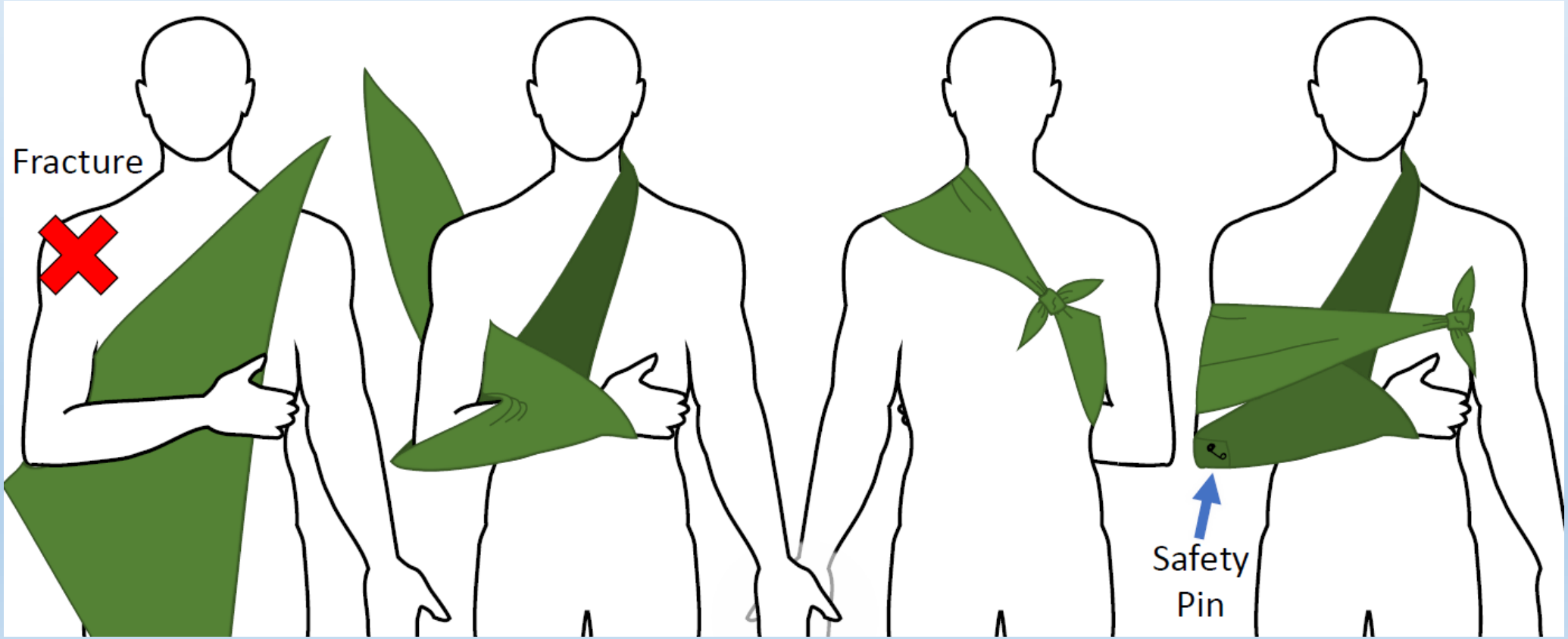
- Fracture Splinting –Forearm or Hand





Applying Splints

- Immobilizing a Shoulder Injury



Bruises

- Symptoms of a bruise:
  - Discoloration of the skin.
  - Swelling.
  - Tightness in the affected muscle or stiffness in the affected joint.
- Treatment for bruising:
  - Ice the area on and off for the first 24-48 hours.
  - Apply ice for about 15 minutes at a time, and always put something like a towel or wash cloth between the ice and your skin.
  - Rest the affected area.
  - If possible, elevate the affected area.
  - For pain, take acetaminophen (Tylenol). Avoid aspirin or ibuprofen (Advil, Motrin), which

Sprains and Strains

- Symptoms:
  - Joint pain or muscle pain.
  - Swelling.
  - Joint stiffness.
  - Discoloration of the skin, especially bruising.

Sprains and Strains

- Treatment

How to Wrap an Ankle

Click on the above video to learn how to wrap an ankle.

How to Wrap a Knee

Click on the above video to learn how to wrap a knee.

Requirement 2

Do the following:

a. Explain why every snow sport participant should be prepared to render first aid in the event of an accident.

b. Explain the procedure used to report an accident to the local ski patrol or local emergency personnel.

Be Prepared for Accidents and Injuries

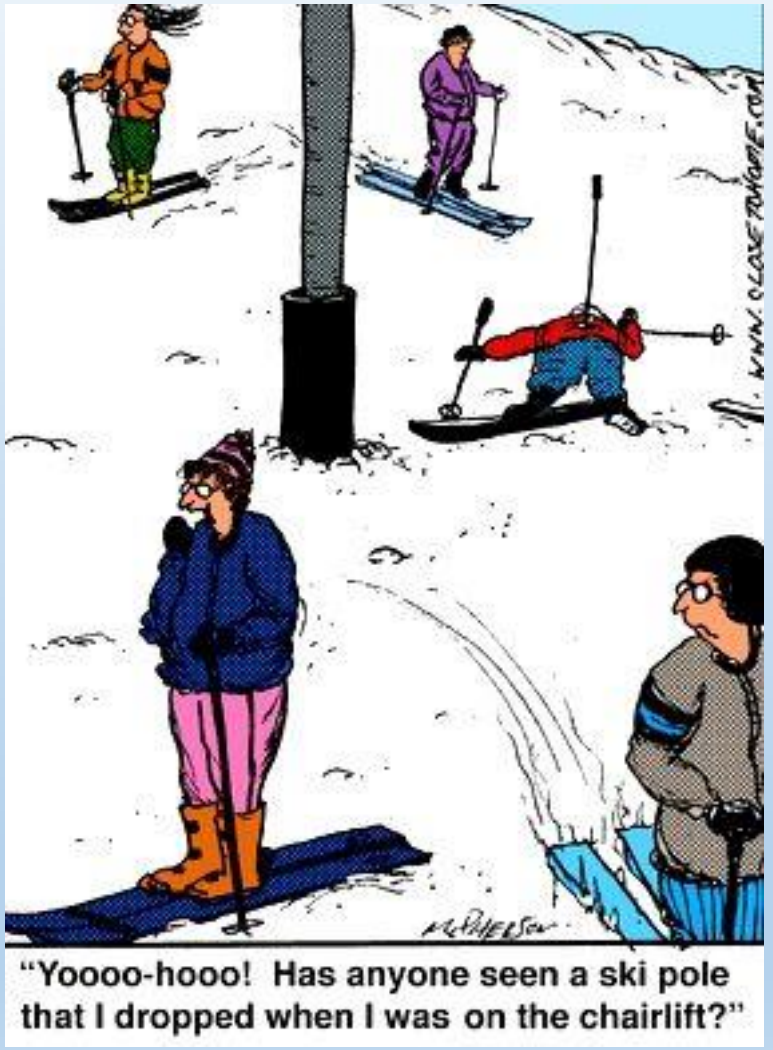
- Accidents can happen at any time and in any location on the slopes and there may not be a ski patrol available immediately.
- Being prepared to provide first aid ensures that immediate care can be given to the injured person, potentially preventing further complications or worsening of their condition.
- The remote and often challenging terrain of snow sports locations can make it difficult for emergency medical services to reach the injured person quickly. By having the knowledge and skills to administer first aid, snow sport participants can provide immediate assistance until professional help arrives.
- Providing first aid can help to alleviate pain and discomfort for the injured person, providing them with some comfort and reassurance during a stressful situation.

Requirement 2

Do the following:

a. Explain why every snow sport participant should be prepared to render first aid in the event of an accident.

b. Explain the procedure used to report an accident to the local ski patrol or local emergency personnel.



How to report an accident to the ski patrol

1. Use a cell phone or ask for help from nearby skiers. Cross ski poles.
2. Nature of the emergency
3. Location of the emergency
4. If calling from a phone, phone number where you are calling from
5. Remain calm, speak clearly and answer all questions
6. After reporting the accident, it is essential to stay with the injured person until help arrives, unless instructed otherwise by the ski patrol or emergency personnel. This ensures that the injured person receives the necessary care and support during the waiting period.

Requirement 3

Explain the international trail-marking system.

Trail Marking System

- Green Circle = easiest
- Blue Square = intermediate
- Black Diamond = expert
- Double Black Diamond = most difficult of all.
- *The catch is, the difficulty ratings are only meant in comparison to other trails AT THE SAME RESORT. So a blue square in the Midwest could possibly be easier than a green circle in the Rockies.*

Trail Rating	Symbol	Level of difficulty
Green circle		Easiest
Blue square		Intermediate
Black diamond		Advanced
Double black diamond		Expert Only

Requirement 4

Discuss the importance of strength, endurance, and flexibility in snow sports. Demonstrate exercises and activities you can do to get fit for the option you choose in requirement 7.

Strength, Endurance, Flexibility

1. What makes skiing such a great exercise is that is uses all of your muscle groups.
2. Some muscles are used more than others and those are the ones you want to concentrate on when it comes to your strength workouts.
3. Most of us hit the slopes and plan on skiing all day, even if it's been months or years since we last skied. Without proper endurance, by afternoon, you're so tired that your legs feel like jello, a prime time for injuries and accidents to happen.
4. Flexibility is important to avoid injuries when you are skiing. It is important to do some stretching before and after each day of skiing to improve flexibility.

Skiing Exercises

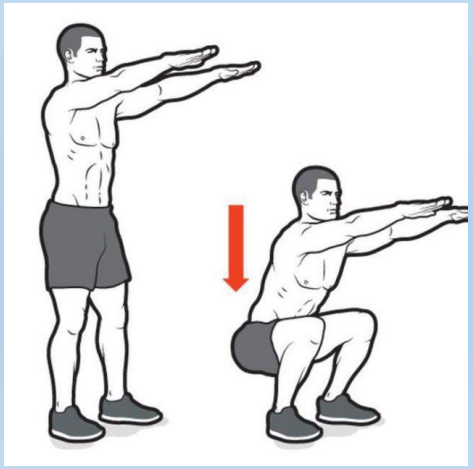
- Endurance exercises:
  - For skiing include 3 to 5 days each week of your favorite activity such as running, the Stairmaster, step aerobics, elliptical trainer, and/or rollerblading.





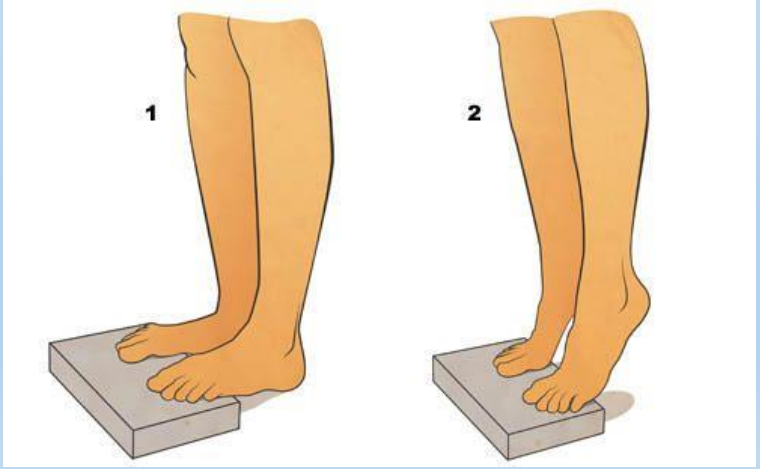
Skiing Exercises

- Strengthening exercises:
  - Probably the most used muscles in skiing are the muscles of the quadriceps, hamstrings, and glutes. These muscles hold you in position as you ski and they also provide protection for your knees. Great exercises for these muscles include **squats** and **lunges**.
  - Because your knees are bent as you ski, your calves (specifically the soleus) help you stay upright so you don't fall over. A great calf-strengthening exercise is the classic **calf raise**.



Squats

Lunges

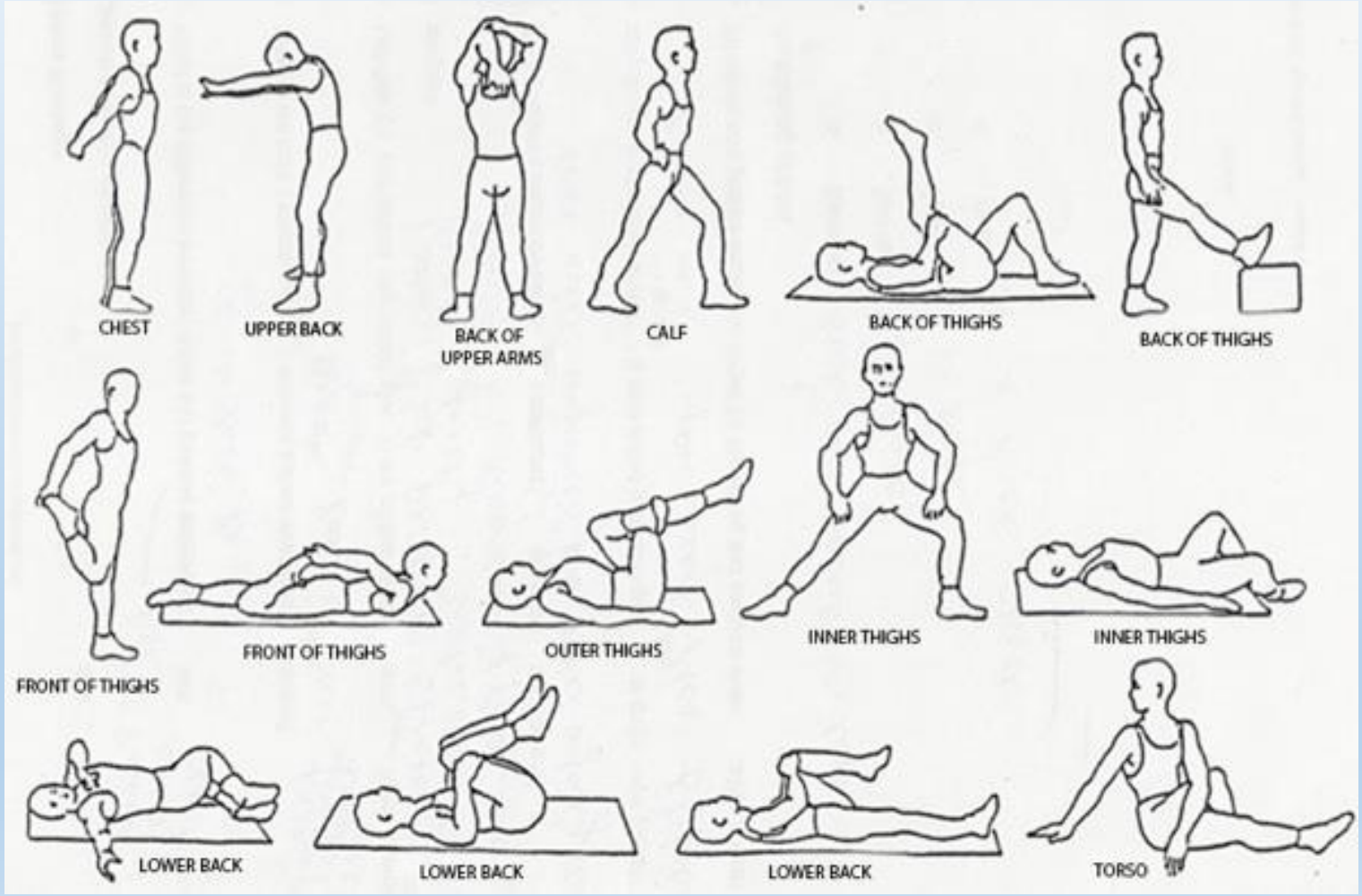


Calf Raises

Stretching and Flexibility

- Stretching can help improve flexibility and the range of motion of your joints.
- Better flexibility can:
  - Improve your performance in physical activities
  - Decrease your risk of injuries
  - Help your joints move through their full range of motion
  - Increase muscle blood flow
  - Enable your muscles to work most effectively
  - Improve your ability to do daily activities
- Before stretching, warm up with light walking, jogging or biking at low intensity for 5 to 10 minutes. Even better, stretch after your workout when your muscles are warm.
- Concentrate your stretches on major muscle groups such as your calves, thighs, hips, lower back, neck and shoulders. Make sure that you stretch both sides.
- Stretch in a smooth movement, without bouncing. Bouncing as you stretch can injure your muscle and actually contribute to muscle tightness.
- Breathe normally and hold each stretch for about 30 seconds; in problem areas, you may need to hold for around 60 seconds.
- Expect to feel tension while you're stretching, not pain.
- You can achieve the most benefits by stretching regularly, at least two to three times a week.

Stretching for Flexibility



Requirement 5

Present yourself properly clothed and equipped for the option you choose in requirement 7. Discuss how the clothing you have chosen will help keep you warm and protected.

Clothing and Equipment – Downhill Skiing

Having the proper clothing is essential for having a blast in the snow.

1. **Base Layer:** Wear a synthetic layer, long sleeves or short sleeves, both works. This is to keep you dry and when you sweat, it won't stay in and make you cold, wet
2. **Mid Layer:** Wear a fleece jacket. This will preserve body heat and keep you warm.
3. **Outer Layer:** Wear a snow jacket and ski pants. This will keep you warm and dry
4. **Head Gear:**
   a. Alpine skiers and snowboarders should wear a helmet – protects you from head injuries.
   b. Nordic skiers and snowshoers should wear a hat.
   c. Ski Mask – protects your face from the cold wind and keep your face dry.
5. **Eye Gear:** Ski Goggles or Sunglasses – this is to protect your eyes from the sun reflecting off the snow. Also, it helps keep snow out of your eyes.
6. **Hand Gear:** Gloves – to keep your hand from frostbite.
7. **Feet Gear:** Ski Socks – to protect your foot from injuries and to keep your feet warm.

Requirement 6

Do EACH of the following:

a. Tell the meaning of the Your Responsibility Code for skiers, snow-boarders, and snowshoers. Explain why each rider must follow this code.

b. Explain the Smart Style safety program. Tell why it is important and how it applies to participants at snow sport venues in terrain parks and pipes.

c. Explain the precautions pertaining to avalanche safety, including the responsibility of individuals regarding avalanche safety.

Responsibility Code

Regardless of how you decide to enjoy the slopes, always show courtesy to others and be aware that there are elements of risk in skiing that common sense and personal awareness can help reduce. Observe the code listed below to ensure safety and enjoyment for everyone on the slopes.

a. Always stay in control, and be able to stop or avoid other people or objects.
b. People ahead of you have the right of way. It is your responsibility to avoid them.
c. You must not stop where you obstruct a trail, or are not visible from above.
d. Whenever starting downhill or merging into a trail, look uphill and yield to others.
e. Always use devices to help prevent runaway equipment.
f. Observe all posted signs and warnings. Keep off closed trails and out of closed areas.
g. Prior to using any lift, you must have the knowledge and ability to load, ride and unload safely.
h. Know the code. It's your responsibility.

Requirement 6

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c. Explain the precautions pertaining to avalanche safety, including the responsibility of individuals regarding avalanche safety.

Smart Style Safety

There are four main messages that are associated with Smart Style:

1. **Make a Plan** Every time you use freestyle terrain, make a plan for each feature you want to use. Your speed, approach and take off will directly affect your maneuver and landing
2. **Look Before You Leap** Scope around the jumps first, not over them. Know your landings are clear and clear yourself out of the landing area.
3. **Easy Style It** Start small and work your way up. (Inverted aerials not recommended).
4. **Respect Gets Respect** From the lift line through the park.

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Avalanche Safety

- **Understand where and why avalanches occur:** Learning this information will help you avoid avalanches when you recreate in snow-covered mountains.
- **Check the avalanche forecast:** A network of avalanche centers in the U.S. provides daily forecasts with detailed information about conditions to help you prepare for your trip.
- **Carry rescue gear and know how to use it:** It's best to avoid avalanches in the first place, but if things do go wrong, always have the proper rescue gear and know how to use it.
- **Learn to recognize five red flags:** Once outside, use your observational skills to recognize five key clues warning you about unstable snowpack.
- **Take a class:** At the very least, take an avalanche awareness course. Consider getting more formal training. Get the education that matches your goals and comfort level.

Requirement 7

Complete all of the requirements for **Downhill (Alpine) Skiing**

a. Show how to use and maintain your own release bindings and explain the use of two others. Explain the international DIN standard and what it means to skiers.
b. Explain the American Teaching System and a basic snow-skiing progression.
c. Discuss the five types of Alpine skis. Demonstrate two ways to carry skis and poles safely and easily.
d. Demonstrate how to ride one kind of lift and explain how to ride two others.
e. On a gentle slope, demonstrate some of the beginning maneuvers learned in skiing. Include the straight run, gliding wedge, wedge stop, sidestep, and herringbone maneuvers.
f. On slightly steeper terrain, show linked wedge turns.
g. On a moderate slope, demonstrate five to 10 christies.
h. Make a controlled run down an intermediate slope and demonstrate the following:
    1. Short-, medium-, and long-radius parallel turns
    2. A sideslip and safety (hockey) stop to each side
    3. Traverse across a slope
i. Demonstrate the ability to ski in varied conditions, including changes in pitch, snow conditions, and moguls. Maintain your balance and ability to turn.
j. Name the major ski organizations in the United States and explain their functions.

Alpine Bindings

- The vast majority of bindings for Alpine skiing work by fixing the ski boot to the ski at the toe and heel.
- The binding attaches the boot to the ski, but to reduce injury also allows the boot to release in case of a fall.
- Generally, the toe piece is designed to allow the boot to rotate to the sides, while the heel piece rotates up.
- In modern bindings a wide variety of motions is available from both toe and heel pieces.

Alpine Bindings

- The boot is released by the binding if a certain amount of torque is applied, usually created by the weight of a falling skier.
  - The amount of torque required to release the boot is adjusted by turning a screw on the toe and heel piece.
  - This is called (colloquially) the **DIN** setting, because the standards for Alpine ski binding settings are issued by **Deutsches Institut für Normung**.
  - The correct DIN setting is based on height, weight, ski boot sole length, the skiing style of the skier (cautious, average, or aggressive) and, age (if the skier is younger than 10 years old, or 50 years old or older).

SKIER WEIGHT	SKIER HEIGHT	SKIER CODE	BOOT SOLE LENGTH AND CORRESPONDING RELEASE SETTINGS					
			1	2	3	4	5	6
			≤251 mm	251-270 mm	271-290 mm	291-310 mm	311-330 mm	≥335 mm
22 – 29 lbs.		A	0.75	0.75				
30 – 38 lbs.		B	1	1	0.75			
39 – 47 lbs.		C	1.25	1.25	1			
48 – 56 lbs.		D	1.75	1.5	1.5			
57 – 66 lbs.		E	2	2	1.75			
67 – 78 lbs.		F	2.5	2.5	2.25	2	1.75	1.75
79 – 91 lbs.		G		3	2.5	2.5	2.25	2
92 – 107 lbs.	4'10"	H		3.5	3	3	2.5	2.5
108 – 125 lbs.	4'11" – 5'1"	I		4.25	4	3.5	3.25	3.25
126 – 147 lbs.	5'2" – 5'6"	J		5	4.75	4.5	4	4
148 – 174 lbs.	5'6" – 5'10"	K		6	5.5	5.25	5	4.75
175 – 209 lbs.	5'11" – 6'4"	L		7	6.75	6.25	6	5.75
210 + lbs.	6'5" +	M		8.5	8	7.5	7	6.75
		N		10	9.5	9	8.5	8.25
		O		12	11.25	10.75	10.25	10

Alpine Bindings

- Alpine ski bindings employ the use of a snow brake to prevent the ski from moving while it is not attached to a boot.
- Snow brakes work by the use of a sprung square 'C‘ shape, typically made of metal, which makes contact with the snow.
- When a ski boot is put in the ski binding, the brake pivots under the downward pressure and runs parallel with the ski allowing free movement.
- When the boot comes out of the ski, the brakes spring out perpendicular to the ski and stop the ski from sliding.

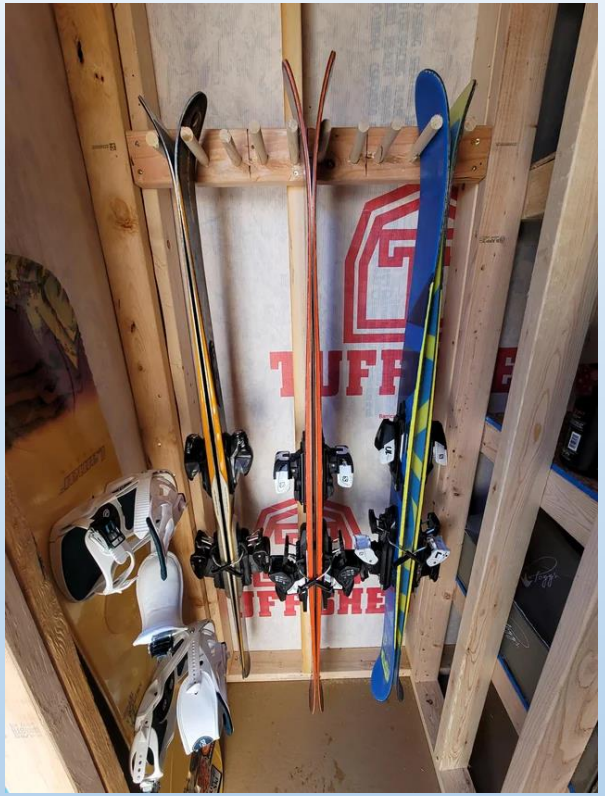
Basic Ski Bindings Maintenance

Your ski bindings maintenance plan should begin at the start of the season.

- Bring your bindings to a well-respected ski shop, and have them checked for common defects, which include broken parts and loose screws.
- Additionally, if you have purchased new ski boots or skis, you will need to check the compatibility between your boots, skis and bindings.
- The anti-friction device plate should also be checked for damage.
  - It is easily replaceable, as long as you catch the damage before it becomes severe.
- Most experts suggest that your DIN setting should be lowered when you reach the age of 50.
- On the other hand, if you are starting to ski in more challenging terrain, you might want to take your bindings to the shop and have them adjusted to a higher DIN setting.

Keep Bindings Clean and Dry

- Remember to dry your bindings after each use in order to prevent the build up of dirt and grime.
- If you keep your bindings on your vehicle's ski rack, be sure to invest in a pair of binding covers.
- Many experts suggest that twice a year you grease the heel piece of your binding, and some suggest that you lower your DIN setting for summer storage.
- During the off-season, be sure to store your skis on a rack in a warm, dry place.



Tech Bindings

- Tech bindings are used for backcountry ski touring.
- Instead of stepping into the binding like a traditional alpine binding, tech bindings connect the boot to the ski using pins that attach at the heel and toe.
- The heel pins can release so that the boot just pivots from the toe for uphill travel.
- Tech bindings are far lighter than traditional alpine bindings and allow for easy ski touring capability.
- They do not provide the elastic travel and consistent releasability of alpine bindings.
- To use tech bindings, you must have boots with tech inserts.

Hybrid Bindings

- Hybrid bindings combine the capabilities of both tech bindings and alpine bindings.
- They provide the uphill touring capability of tech bindings, albeit in a heavier and more complex package.
- They also provide the releasability and elastic travel of alpine bindings, making them safe and comfortable to routinely use for downhill skiing.
- Hybrid bindings are a great choice for someone who wants one boot, binding, and ski for both alpine touring in the backcountry and downhill skiing at the resort.

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j. Name the major ski organizations in the United States and explain their functions.

American Teaching System

- The basic teaching progression starts a student with balancing on a moving ski on a flat area and progresses to 2 skis, making a wedge turn in each direction, and stopping by turning uphill by stepping out of the position.
- Once the student can turn both ways and stop on command on a gentle slope, edging of the skis by side stepping up and downhill and climbing with a herringbone maneuver is introduced and the skill is developed to let the student climb and slide on a gentle slope.
- At this point the student is shown how to ride and unload from a beginners lift, the next stage is to ski a great deal and to practice the 3 skills they have been shown and to learn about pressuring the ski edge.
- This initial lesson can usually be taught in about 1.5 hours in many ski resorts. The next lesson will involve more skiing, and some new turns to help the student to become a good skier.

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All Mountain Skis

- Best for recreational downhill skiing on most types of terrain.
- All mountain skis are built to ski all over the mountain in varying snow types, from groomed trails to powder.
- They’re one of the best types of skis for beginners and a great choice for skiing generalists who enjoy skiing on all types of snow.
- All-mountain skis are not the fastest or most agile type of skis, but unless you are a very proficient skier, you probably won’t exceed the performance limits of all-mountain skis.

Powder Skis

- Best for skiing in deep powder.
- Trying to ski in deep powder with narrow skis is a recipe for disaster, as the small surface area means you'll probably sink up to your knees!
- Powder skis are wider and can cope with even the deepest snow.
- They also feature a more curved tip, so your ski won't dig into the snow and send you head-over-heels.

Snow Blades

- Best for having fun, especially as a beginner.
- Also known as ski blades, short skis, or ski boards, this type of ski is very versatile.
- They come in various lengths and are designed for recreational skiing and having fun!
- They’re all-rounders that you can use for a range of skiing activities, both on groomed and ungroomed trails.
- Snowblades are an excellent choice for novices as well as intermediates who just want to play in the snow.

Freestyle Skis

- Freestyle skis, also known as park and pipe skis, are made for jumps, turns, and other tricks.
- The most obvious difference between freestyle skis and most other ski types is that they have upturned tips at both ends so you can ski forward AND backward.
- They’re primarily used in snow parks, but you can “hot dog” and strut your stuff on other parts of the mountain, too.

Carving Skis

- Best for fast, controlled, skiing on groomed trails.
- Carving skis are probably the most common type of ski and what most recreational skiers are used to.
- The edges are curved, which means they naturally want to turn when you put your weight on the edges and “carve” the snow.
- Carving skis are at home on well-groomed ski runs but aren’t much use on ungroomed trails.

Racing Skis

- Best for downhill and some slalom (especially giant slalom).
- Race skis are long, narrow, and incredibly fast (the F1 cars of skiing).
- Top downhill skiers can hit mind-boggling speeds and turn sharply, too.
- Race skis are flexible and very responsive, but your ability to turn is somewhat affected by the length of the skis.
- Ideal for well-groomed slopes.

How to Carry Your Skis

- **Fasten Skies Together.**
  - Make sure your bindings are in the “open” position (rear bindings at the bottom) so that the ski stops protrude from the ski.
  - Hold your skis parallel to one another, bases facing each other, to begin.
  - Put your skis tips one against the other with a slight offset.
  - Slide the upper ski down against the lower ski.
  - The ski breaks will interlock which will keep your skis linked.

How to Carry Your Skis

- **The Right Way AKA The Local:**
  - Rest your skis on your shoulder and hook your arm around your skis below the bindings.
  - You may want to lower your arm if you're in a crowd so your skis are in more of an upright position.
  - Either way, be careful when you turn around and keep an eye out for bystanders!

How to Carry Your Skis

- **The Upright Way AKA The Claw:**
  - Carry your skis the Right Way indoors or in the Tram line, and you're likely to decapitate a fellow skier.
  - That's where the Upright way or the Claw comes in.
  - Keep your skis close.
  - Hook your arm around your skis and lift them off the ground for this simple carrying method.
  - You can hug your skis in close to your body for extra support.

How to Carry Your Skis

- **The Suitcase**
  - The setup takes more time, but it's worth it for those long-hauls to and from the parking lot.
  - Arrange your ski poles so they are each facing the opposite direction. Thread your skis through the wrist strap of each ski pole.
  - The basket of the ski pole from the opposite end should also be threaded through the strap.
  - Once your poles and skis are secure, use your poles like a luggage handle to carry your skis.

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How to Ride a Chair Lift

Click on the above video to learn how to get on and off of a chair lift.

Using a T-Bar or J-Bar

- A J-bar is for one person and a T-bar is for two people.
- **How to use J bars and T-bars safely:**
    1. When in the loading area, put your poles into one hand and get ready to grab it as it comes round from behind you or the lift operator passes it to you.
    2. Instead of putting it between your legs, let the bar rest just below your bottom and push you up.
    3. It won't hold your weight so don't try and sit – let your skis take most of the weight.
    4. If you fall, try to move out of the pathway. If you can't ski back down and rejoin the queue, a lift operator / instructor should be able to help you get back safely.
    5. Stay on the lift until you reach the point that you've seen the people in front let go.

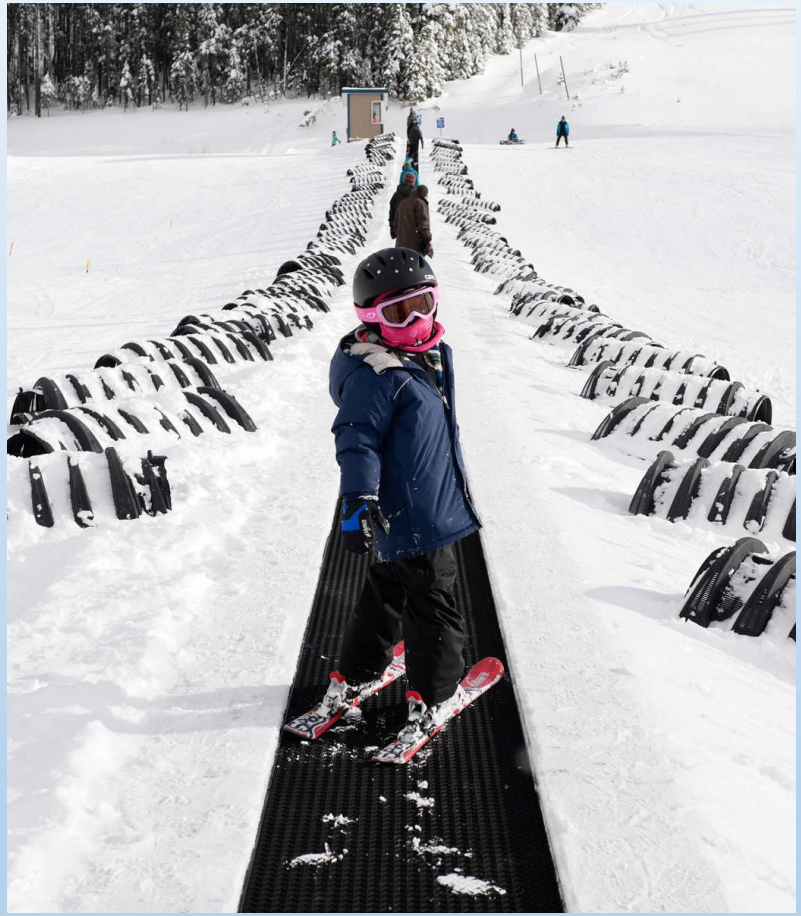
Using a Rope Tow

- A rope tow is a continuous rope loop that pulls you along.
- **How to use a rope tow safely:**
    1. When you reach a rope tow, grab it at the side of your body whilst holding your poles in one hand. Keep your gloves on to avoid rope burn and give you extra grip.
    2. Keep your skis parallel and let the rope drag you up the slope.
    3. Don’t try to ski away from the rope until you reach the end in case it causes you to fall or get in the way of others.

Using a Magic Carpet

- Magic Carpets are a conveyer belt built into the snow which transports you over a short distance. They're often found in beginner areas as they're the easiest lifts to use and work on gentle slopes.
- **How to use a Magic Carpet:**

1. Most magic carpets are fairly short, so you're likely to be able to see if someone in front of you loses their balance (most often because their skis aren't entirely on the carpet). If they do, don't get on and you'll avoid a pile up. Make sure you keep a safe distance from the person in front, or it'll get backed up as you try to exit at the top. Some carpets have a stop and go light, so make sure the light is green before trying to get on.
2. Shuffle onto the magic carpet with your skis in parallel. The belt is grippy so you don't slide back down, which means you might feel an initial jolt as it takes over the movement – don't try and fight it as you might become unsteady.
3. Have your poles at the ready to push you away from the end of the lift so the next person has space to come off.



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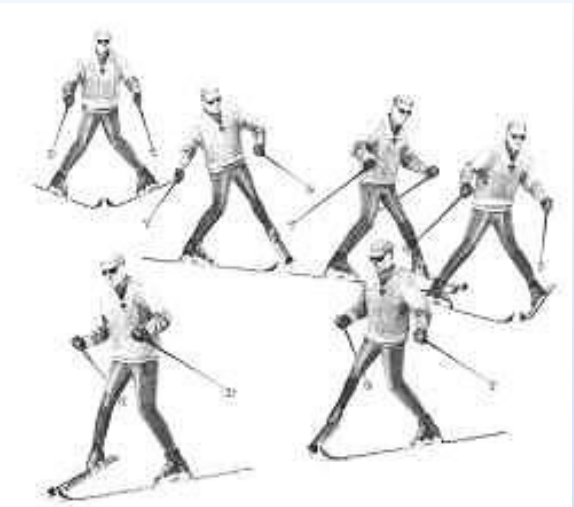
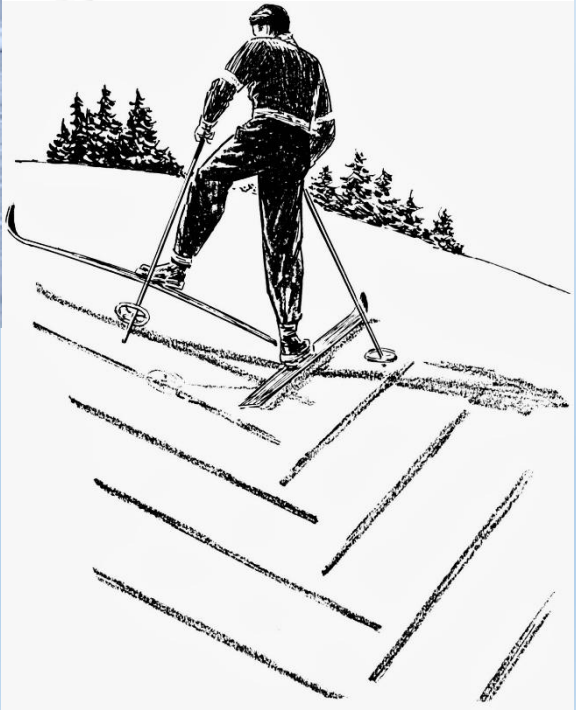
j. Name the major ski organizations in the United States and explain their functions.

Demonstrate While Skiing

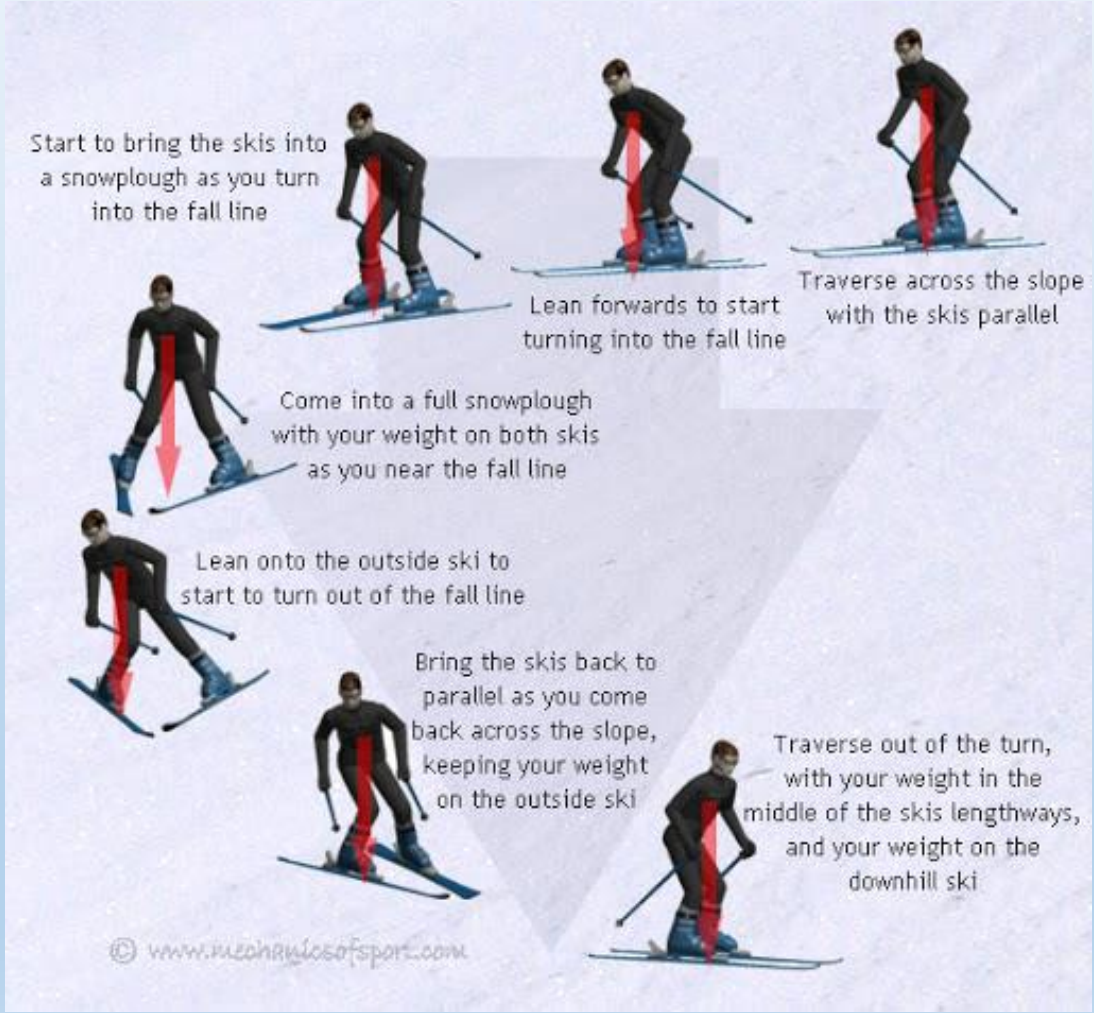
1. On a gentle slope, demonstrate some of the beginning maneuvers learned in skiing:
   a. straight run
   b. gliding wedge
   c. wedge stop
   d. Sidestep
   e. Herringbone
2. On slightly steeper terrain, show linked wedge turns.





Demonstrate While Skiing

3. On a moderate slope, demonstrate five to 10 christies.
    a. The **stem christie** or "wedge christie" is a technique used in skiing for turning. The turn comprises three steps:
        1. Forming a wedge by rotating the tail of one ski outwards at an angle to the direction of movement, which initiates a change in direction opposite to the stemmed ski.
        2. Bringing the other ski parallel to the wedged ski.
        3. Completing the turn with both skis parallel as they carve an arcing turn sliding sideways together.



Stem Christie

Click on the above video to learn how to do a Stem Christie turn.

Demonstrate While Skiing

4. Make a controlled run down an intermediate slope and demonstrate the following:
   a. Short-, medium-, and long-radius parallel turns.

Click on the video above to learn how to start parallel turning.

Demonstrate While Skiing

4. Make a controlled run down an intermediate slope and demonstrate the following:
   b. A sideslip stop to each side.

Click on the video above to learn how to sideslip stop.

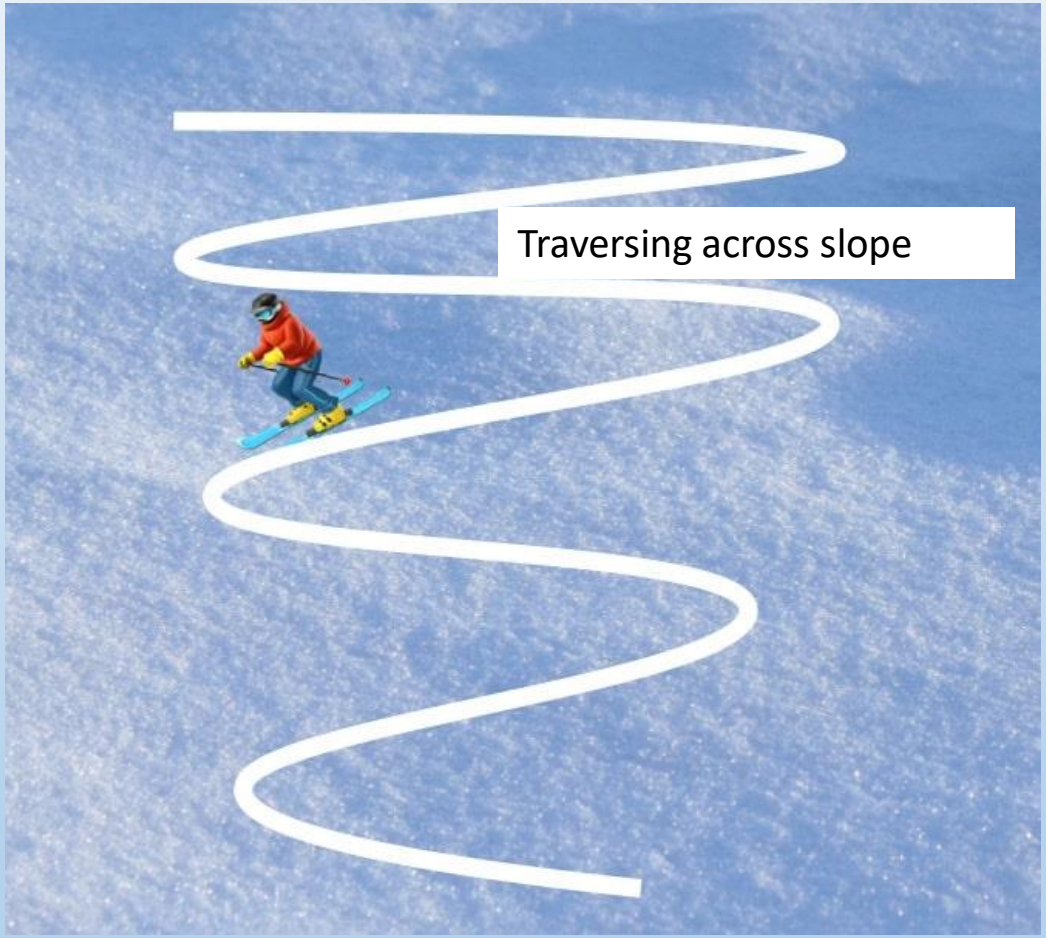
Demonstrate While Skiing

4. Make a controlled run down an intermediate slope and demonstrate the following:
   b. A safety (hockey) stop to each side

Click on the video above to learn how to hockey stop.

Demonstrate While Skiing

5. Traverse across a slope.
   - Traversing is when the skier moves diagonally across the slope without turning.
   - As the skis glide, they are in parallel and the skier only descends down the mountain slightly. The speed doesn't increase much because the skier is going across the slope, not down it.



Demonstrate While Skiing

6. Demonstrate the ability to ski in varied conditions, including changes in pitch, snow conditions, and moguls. Maintain your balance and ability to turn.

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USSA

- The **U.S. Ski and Snowboard Association** (USSA) is the national governing body of Olympic skiing and snowboarding.
  - It is the parent organization of the U.S. Ski Team, U.S. Snowboarding and U.S. Freeskiing.
  - Developed to facilitate participation in national and international competition, the Olympic sports organization provides structure for competitive skiing and snowboarding.
  - From grassroots programs to governance of sport, management of rules, competitions and athletic rankings, the USSA oversees athletic pipelines for development in the sports.
  - With a vision to make the USA the best in the world in Olympic skiing and snowboarding, the USSA provides leadership and direction for tens of thousands of young skiers.

PSIA-AASI

- The Professional Ski Instructors of **America and American Association of Snowboard Instructors** (PSIA-AASI) is the world's largest nonprofit education association dedicated to promoting the sports of skiing and snowboarding through instruction.
- With more than 31,500 members instructing at 300 member ski and snowboard schools, PSIAAASI establishes certification standards for snowsports instructors and develops education materials to be used as the core components of instructor training.

NSP

- As the leading authority of on-mountain safety, the **National Ski Patrol** (NSP) is dedicated to serving the public and outdoor recreation industry by providing education and accreditation to emergency care and safety service providers.
- The organization is made up of more than 28,000 members serving over 650 patrols, including alpine, Nordic, and auxiliary patrollers.
- The members work on behalf of local ski and snowboard areas to improve the overall experience for outdoor recreationalists.

NASTAR

- **NAtional STandard Race** is the largest public grassroots ski race program in the world.
- Participants compete within their age and gender groups to win platinum, gold, silver and bronze medals.
- In addition, participants are ranked in their medal group and the top ranked racers qualify to compete in the Nature Valley NASTAR National Championships.
- The NASTAR handicap system is a standardized scoring program that provides participants with a tangible number that represents their ability.
- The NASTAR.com web site records each participants stats and ranks each racer at the host resort, in their state of residence and nationally.


The End