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Local and program regulations and safety guidelines take precedence over this information. It is in your best interest to exercise due diligence in determining the appropriateness of the information for your particular circumstances. In addition, please take into account any and all factors that may affect your lesson. This includes but is not limited to: the health, well-being and fitness of the student; weather conditions; terrain; other people on the slope; your own abilities, as well as those of your student and anyone who may accompany you.

This guideline provides links to other resources as well as websites owned by or maintained on behalf of third parties. The content of any such third-party source or site is not within our control, and we cannot and will not take responsibility for the information in them, nor should any references to them be considered any endorsement by PSIA-RM.
Note: The Americans with Disabilities Act (ADA) requires that testing entities such as PSIA-RM-AASI make "reasonable accommodations" for qualified candidates with disabilities (whether physical or cognitive) and to the extent that they would not "fundamentally alter" the services being provided. Members with disabilities who are considering applying for an education course or certification exam must contact PSIA-RM-AASI at 970-879-8335 at least four weeks in advance of a scheduled course or exam to provide notice of their requested reasonable accommodation and discuss their situations. This allows PSIA-RM-AASI to assess your request for a reasonable accommodation and to plan for reasonable accommodations, if necessary. Requests for accommodations will be considered on a case-by-case basis.

The essential eligibility requirements for each Adaptive Alpine Level 1 and 2 course and exam are presented in this exam material. The standards are national in scope and their maintenance is necessary in the interests of public safety, effectiveness, value for the consumer, and guest/employer expectations.

The ADA does not require reasonable accommodations for a transitory or minor disability. A transitory disability is an impairment with a duration of six months or less, such as one caused by illness or injury. If this applies to you, you may contact the PSIA-RM-AASI office to receive or refund or to transfer to a future clinic or exam.

You may refer to the PSIA-RM-AASI Americans with Disabilities Act (ADA) Policy for further information.

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Adaptive Alpine Level 1 & 2 Path to Certification

To attain Level 1 Certification in Adaptive Skiing

1. Become a PSIA member, if you are not currently a member.
2. Download the Functional Skiing Level 1 & 2 Professional Development Log from the Ed. Materials section of the psia-rm website.
3. Download the Professional Development Log for the Specialty Exam you are taking. The Specialty Professional Development Logs are available from the Ed. Materials section of the PSIA-RM website.
4. Work through your Professional Development Logs with the help of your home area trainers. Turn in each completed Professional Development Log on the day of the corresponding exam.
5. Download the take home exam for the Specialty Exam you are taking. The take home exams are available from the Ed. Materials section of the psia-rm website.
6. Complete the Adaptive Functional Skiing and Technical Prep Clinic. (2 Days)
   Note: Those with Alpine Level 2 Certification are exempt from taking this clinic.
7. Successfully complete the Adaptive Functional Skiing Exam. (1 Day) If a candidate does not pass the Functional Skiing Exam, he/she may not advance to the specialty exam module.
8. Successfully complete one Specialty Exam. Choose from the following:
   - Adaptive 3-Track, 4-Track and Slider Exam (1 day)
   - Adaptive Bi-ski & Mono-ski Exam (1 day)
   - Adaptive Cognitive & Visually Impaired Exam (1 day)
9. Score an average of 4 or higher in each section of the exam.

To attain Level 2 Certification in Adaptive Skiing

1. Successfully complete the Adaptive Level 1 Certification. (Total 4 Days)
2. Successfully complete the remaining two Specialty Exams. (2 Additional Days)
3. Score at a Level 2 in one of the three Specialty Exams. (see module scorecard for Level 2 requirements)

Notes

1. Clinic and exam participants are expected to bring adaptive equipment to their events. Depending on the clinic or exam, you may need to bring stand-up outriggers, blind skier/guide bibs, ski bras, tethers, sliders, mono-skis and bi-skis. Contact the examiner to find out what equipment you need to bring.
2. If an exam candidate has a disability, his/her capability to demonstrate skills and perform tasks will be evaluated relative to the extent/nature of that disability. The instructor is expected to demonstrate the appropriate skill element that equates to an able-bodied skier's demonstration of that specific task or demonstration. The instructor is required to communicate, analyze, direct and lead.
ADAPTIVE ALPINE LEVEL 1 & 2
CERTIFICATION STANDARDS

The standards listed below are the minimum requirements for Level 1 & 2 Adaptive Certification. These standards are general and can be applied to each aspect of Adaptive Certification Modules. This includes the following adaptive exam modules: Functional Skiing; Cognitive/Visually Impaired; Bi-Ski/Mono-Ski; 3-Track, 4-Track and Slider.

General Standards
“Exam Candidates should be able to…….”

- Effectively teach Adaptive Skiers, Levels 1 – 6.
- Present a safe environment for the student, themselves and others.
- Ski at a minimum Level 7 (open stance parallel) on all green, blue/blue bumps and easy black terrain.
- Demonstrate basic knowledge & understanding of specific disability and/or specialized equipment.
- Turn in a completed professional development log and take-home written exam for examiner review. A development log that is not filled out will indicate that the candidate has not put in the effort for studying. The take home exam needs to be completed with an 80% pass rate.

If there is any question in regards to the candidate’s knowledge, the professional development log and take home exam are secondary tools to interview the candidate and to evaluate whether or not the candidate passes or fails a section of the exam.

Movement Analysis/Technical Understanding
“Exam Candidates should be able to…….”

- Identify basic movement needs of an adaptive skier from DVD or real student.
- Identify the guest centered teaching methods and one skill movement in all phases of the turn. (Please use the GCT and MA work sheets provided in the study guide.)
- Demonstrate technical knowledge of Movement Analysis based on discussion and applications used during on-hill teaching demonstration.
**Equipment Setup**

“Exam Candidates should be able to…….”

- Understand common disabilities associated with specialized adaptive equipment.
- Set-up specialized adaptive equipment based on individual need of adaptive students.
- Load and unload specialized adaptive equipment from a variety of lifts based on ski area procedures, correct handling of equipment and student, and common safety practices.
- Handle specialized adaptive equipment on-hill utilizing specific skiing techniques to enhance student learning, overall experience and safety.

**Teaching**

“Exam Candidates should be able to…….”

- Assess student profile based on specific disability, movement analysis and other special needs.
- Apply student profile to the development of individualized lesson goals.
- Utilize understanding of skiing fundamental skills to target lesson content.
- Apply the teaching model to structure and deliver the lesson plan.

**Disability Knowledge**

“Exam Candidates should be able to…….”

- Define and describe specific disabilities listed in the disability profile located in the module that is being examined.
- Associate general medication categories common to specific disabilities.
- Relate knowledge of disabilities to creating guest centered/focused student assessments.

**Exam Scoring Criteria**

All exam candidates will be evaluated on a pass/fail. Scoring criteria is as follows:

- **The first three boxes are considered not meeting the standard**
  - Essential elements were not observed or not present
  - Essential elements are beginning to appear.
  - Essential elements appear, but not with consistency

- **The next three lines are considered meeting the standard**
  - ✔️ Essential elements appear regularly at a satisfactory level
  - ✔️ Essential elements appear frequently, above required level
  - ✔️ Essential elements appear continuously, at a superior level
Functional Skiing Task Describers

(Video with descriptions available for purchase online at psia-rm.org)

Functional skiing is defined as the basic skill level needed for instructors to safely and successfully teach adaptive skiers. Whether guiding a blind skier or safely tethering a biski, instructors should exhibit a minimal level of competency in order to be most effective with special-needs students. PSIA-Rocky Mountain has identified specific skiing maneuvers and tasks that when practiced; enhance an instructor’s demonstrations, personal skiing ability and the ability to assist students utilizing specialized equipment. These maneuvers can also be used as teaching tools and exercises to build the fundamentals of skiing for any discipline. Specific types of terrain and snow conditions (such as bumps and variable snow conditions) are practiced so that instructors can provide lessons in a variety of mountain situations.

As the baseline for all levels of Adaptive Certification, instructors must demonstrate proficiency with all functional skiing maneuvers and tasks listed below. This minimum standard not only increases teaching effectiveness, it helps develop solid technical understanding into how turns develop and the specific skills and skill blends utilized at different levels of skiing.

Side Slip to Hockey Stop

Why this maneuver? This maneuver is extremely important as a method used in tethering mono or bi-skis, guiding blind students or working with any other disability. The Side Slip to Hockey Stop is essential for mastering the beginner terrain moving into the intermediate zone and can be performed in any discipline.

This maneuver is performed on smooth, easy blue terrain.

Description: From a straight run in the fall line, initiate a sideslip through simultaneous turning of both legs across the fall line while maintaining a stable upper body and balanced/neutral stance. (A slight flexion of the legs will enhance the ability to turn the feet and legs independent of the torso)

1. While side-slipping, a natural lead of the uphill ski and body keeps hips free to adjust edge angles. Upper body should face down the hill while skis turn across the hill.
2. Sideslip should be maintained in a narrow corridor, without traveling across the hill in a corridor no more than the approximate length of 1 ½ skis.
3. Continuous fore-aft adjustments will help maintain a perpendicular sideslip with minimal travel across the hill.
4. After a distinct side slip, progressively tip both feet and legs into the hill to engage edges to a balanced stop, or “hockey stop”.
5. Continuous adjustments from foot-to-foot will help center skier over both skis.
6. Reverse direction and repeat the maneuver to the other side.
Falling Leaf

Why this maneuver? This maneuver allows instructors to move slowly down a hill (similar to the side slip), while adjusting across the hill to match the adaptive student’s path of travel. The Falling Leaf maneuver saves instructors from having to wedge in the fall line, thus making it an energy-efficient way to ski with novice adaptive skiers. When used as a ski drill it teaches the adaptive student about pressure control and is a great task used in the advanced beginner zone.

This maneuver is performed on steeper green to easy blue, groomed terrain.

Description: From a side slip in the fall line, use feet and legs to steer skis back and forth across the hill. The skier maintains the same directional orientation while the skis move forward and backward. A swooping Z-shaped pattern with coordinated blending of skills will help maintain speed control and allow the skier to maneuver as desired across the hill.

1. From a side slip in the fall line, use coordinated flexing and extending movements of the joints, along with for/aft pressure of the skis, to allow the skis to move forward and backward across the hill.
2. Use turning movements of the legs and feet as necessary to control shape and speed.
3. Use tipping movements of the feet and legs to control edge engagement.
4. This maneuver should be symmetrical with the fall line.
5. This maneuver is performed in both directions.

Traverse - to Diagonal Side Slip - to Traverse

Why this maneuver? This maneuver is another way for instructors to move slowly across the hill while assisting students, without having to hold a wedge position. The ability to control the degree of edge engagement and make subtle adjustments is also an important skill when tethering adaptive students on specialized equipment. As an exercise, it enhances the student’s ability to maintain balance and stance while establishing edge control.

This maneuver is performed on steeper green to easy blue, groomed terrain.

Description: From a clean traverse across the fall line, use ankles and knees to release the edges of the skis so they side-slip diagonally across the hill. After a brief period of diagonal side slipping, re-engage the ankles using ankles and knees and continue in a clean traverse across the hill.

1. From a traverse, release both edges to a forward side slip through simultaneous tipping movements of the feet and legs.
2. The upper body should remain stable and in a slightly countered relationship to the feet and legs. (Counter is developed through turning movements of the feet and legs)
3. After the diagonal side slip, re-engage both edges through simultaneous tipping movements of the feet and legs.
4. Perform this maneuver in both directions across the hill.
**Stem or Step Turns**

*Why this maneuver?* This maneuver is an excellent way to get from one direction to another quickly. It is extremely important in maintaining speed control when tethering because it minimizes time spent in the fall line when changing directions. This maneuver is not necessarily tough but it is also referred to as a blocking turn to stop and change the direction of travel.

**Description:** At the end of a turn, stem the uphill ski into a diverging (wedge) position. Quickly transfer weight to the uphill ski and initiate the turning process. Match the inside ski from a wedge position to a parallel position and complete the turn with the skis parallel.

This maneuver is performed on harder blue terrain to easy black terrain, showing quick directional changes.

1. End each turn with the skis parallel. The skis can either be moving forward slowly as the turn is finished, or skidding sideways for speed control. This maneuver can also be demonstrated from a complete hockey stop!
2. Use the appropriately sized wedge position to regulate the initiation of the next turn. This can either be large or small, depending on the situation.
3. The uphill ski can be stepped and placed into this wedge position, or the tail of the ski can be brushed out through the snow until the wedge position is achieved.
4. Once the ski has been placed, make an immediate and complete weight transfer to the uphill ski. This will start the turn initiation into the new turn and help to minimize time in the fall line.
5. Quickly match the skis once again into a parallel position by sliding or brushing your inside ski into the parallel. This is considered a 1-2, or sequential movement. The matching movement is made with a rotation of the leg and foot, steering the ski to match.
6. The turn is completed with the skis parallel. Turn shape can be round, skidded or side slipped to a hockey stop to maintain speed control.
7. Stem or Step Turns of any shape should be linked together with rhythm and flow. Speed control is maintained using turn shape.
**Hour Glass Parallel Turns with Progressive Radius Reduction**

*Why this maneuver?* It is important for adaptive instructors to be able to change the radius of their turns while maintaining speed control in order to manage specialized adaptive equipment safely. Hour Glass Turns are an excellent way to practice this skill and to teach to any level of student.

**Description:** This maneuver is a series of parallel turns that start from a medium radius. Each subsequent medium radius turn decreases in radius to become short radius turns. From short radius, the turns are then increased once again back to medium radius turns. The entire series of turns paints an “hour glass” track in the snow. This maneuver is performed with consistent speed control, using turn shape, so that the short radius turns are no faster than the medium radius turns. If numbers were assigned to each turn size, the larger turns might start at 6 then progressively get smaller, to a series of turns at a size of 2, and then back to the larger turn size of 6.

The sequence might look like this, 6 – 5 – 4 – 3 – 2 – 2 – 3 – 4 – 5 – 6. This sequence would be repeated until reaching the agreed upon stopping point and finished with a hockey stop.

This maneuver is performed on harder blue to easy black groomed terrain with an even fall line pitch.

1. **Turns can be performed as a basic parallel or dynamic parallel (depending on the skill level of the skier) or be performed disability specific.**
2. **All skiers should perform this maneuver with a balanced, centered stance.**
3. **Turns should be symmetrical on each side.**
4. **A distinct difference from the medium radius turns to the short radius turns and back to medium radius should be evident.**
5. **Speed should remain consistent throughout the entire demonstration.**
6. **Speed control is achieved through skill-blending and turn shape.**
**Free Ski Run**

*Why this task?* Watching skiers ski their preferred turns, or “free ski”, allows for an assessment of their basic skiing mechanics. Most skiers have specific styles and preferred turning mechanisms that either enhance or hinder their ability to ski a variety of terrain or perform specific skill-based maneuvers with accuracy (such as a hockey stop). Adaptive instructors are assessed while free skiing to help coach them towards better skill and greater overall skiing success.

**Description:** Skiers are asked to ski a section of hill at their own pace and in their own personal style. With the previous set of skiing maneuvers, the maneuvers themselves dictate a skier’s basic skill, their ability to blend skills and their basic understanding of what to do with their skis and body in order to successfully perform the maneuver. For example, a skier cannot successfully perform a side slip if they are unable to release their edges and allow the skis to slide sideways down the hill.

In free skiing, the task does not necessarily outline success. Skiers can ski down a slope and ‘make it’, but their overall technique may be flawed. In this task, there are certain guidelines that account for successful free skiing or for free skiing that needs some work. Typically, if a skier has a flawed overall technique, it will not only be apparent in their free skiing, but their ability to perform specific maneuvers (like a Stem Step Turn) will be hindered as well.

The free ski run is performed on groomed blue or easy groomed /black terrain.

1. Turns should be linked (no traverse) at a minimum of dynamic parallel or disability equivalent.
2. Skiers should be able to utilize ski design and skill blending to create turn shape.
3. Stance should be balanced and centered.
4. Progressive movements should be used to simultaneously steer the skis through the turn.
5. Speed is controlled through turn shape and should be consistent for the entire run.

**Bump Run**

*Why this task?* Bumps happen. Especially here in the Rocky Mountains, our soft snow that starts off as groomed in the morning can quickly become bumps by the afternoon. It is important for adaptive instructors to be able to ski in bumps so that they can effectively work with mountain skiing students in a variety of situations.

**Description:** Skiers are asked to ski a section of hill with relatively easy bumps at their own pace and in their own personal style. Since bumps can change drastically from turn to turn, skiers should be able to “adapt” their skiing and adjust their turns to meet the demands of the situation.

This task is performed on blue bumps runs, with a moderate pitch and smaller sized bumps. Only one of the following will be examined:

1. **Fall-Line Bump Skiing** with…
   a. Rhythmic, linked, parallel, short to medium radius turns (no traversing or stemming).
   b. Consistent speed maintained through turn shape.
   c. An appropriate blend of skills.
   d. Tactical choices appropriate to terrain and snow conditions.
2. **Medium to Large Radius Turns in the Bumps** with…
   a. Linked turns showing a balanced and centered stance.
   b. Maintenance of ski snow contact through absorption.
   c. Consistent speed maintained through turn shape.
   d. Tactical choices appropriate to terrain and snow conditions.
Variable Terrain and Snow Conditions

Why this task? Some of our adaptive students enjoy the experience of seeing the whole mountain. Whether low intermediate or advanced, students will need an instructor capable of skiing with them no matter what the terrain is or what the conditions of the day may be!

Description: Skiers are asked to ski a section of hill that has not been recently groomed. Conditions could range from small blue bumps to chopped-up snow or 8+ inches of powder. Skiers should be able to “adapt” their skiing and adjust their turns to meet the demands of the situation.

This task is performed on an un-groomed blue run.

1. Turns should be linked (no traverse) at a minimum of dynamic parallel or disability equivalent.
2. Skiers should be able to utilize ski design and skill blending to create turn shape.
3. Stance should be balanced and centered.
4. Progressive movements should be used to simultaneously steer the skis through the turn.
5. Speed is controlled through turn shape and should be consistent for the entire run.

Synchronized Skiing with one or more Partners

Why this task? Synchronized skiing is really fun! It is also a good measure of your ability to adjust your skiing to another person’s turn shape or rhythm. As adaptive instructors, these adjustments must be made in order to successfully meet the skiing needs of our students.

Description: Skiers can synchronize their skiing in pairs or with 3 or more other skiers. In this task, the group of skiers will cue off the designated leader and match their turns exactly. Typically a set rhythm is established, along with a starting turn direction left or right. All skiers start and end together at the same time. Voice cues help to establish basic rhythms and other performance criteria. There are a variety of group formations that can be utilized when synchronized skiing, such as side-by-side, skier in front and behind, lines, diamond formations, flying “V” formations and others.

This task is performed on groomed blue to easy groomed black terrain.

1. Skiers should have the ability to pace as the leader and adapt as the follower(s). The leader is responsible for setting up the synchronized skiing exercise. The follower is acting according to how the leader sets up the task.
2. Turns should occur at the same time rather than in each others tracks.
3. Skiers should have a coordinated finish with a balanced hockey stop.
4. The leader and follower switch roles and repeat the same task, but this time the exercise is set up by the new leader.
Adaptive Functional Skiing and Technical Prep Clinic

This clinic is a prerequisite to Level 1 & 2 Adaptive Certification. Participants are introduced to the functional skiing tasks and movements needed to effectively teach adaptive lessons. Additional discussions regarding adaptive teaching and lesson planning enhance understanding. Candidates should bring their professional development logs and this document to the clinic.

Note: This is a sample agenda only. Each examiner sets a schedule based on weather, terrain, snow conditions and the people taking the clinic.

Approximate Timing – Day One

This is an all-day indoor presentation

8:00 – 8:30 Sign in and be ready for indoor presentations.

8:30 – 9:00 Introductions – People / Logistics / Clinic format / Clinic & group safety
What do you want from the clinic?
Set goals for Teaching / Technical / Movement Analysis

9:00 – 11:30 Introduction to PSIA as an organization.
Introduction to the technical aspects of skiing, including common skills and movement pools and Stepping Stones

11:30 – 12:30 Lunch

12:45 – 3:15 Movement Analysis and Guest Centered Teaching (GCT)
Exam Tasks

3:45 Summarize
Handouts, Q&A, feedback

Approximate Timing – Day Two

On snow dressed and ready to ski

8:30 – 9:00 Introduction to the day
Check for questions

9:00 – 12:00 Functional skiing maneuvers and teaching – take the indoor analysis onto the hill.

12:00 – 12:40 Lunch – summarize the morning

1:00 – 3:30 Review all tasks for Functional Skiing Exam
Personal skiing
Review clinic topics, as needed
Discussion of exam format and content
Feedback and discussion

3:30 – 4:00 Summarize

4:00 Individual feedback

As you can see, there is a lot to get done. Please plan accordingly and help utilize the time wisely. Have equipment readily available and set for your use.
Adaptive Functional Skiing Exam

This is a one-day validation of skiing, teaching and technical understanding for levels 1-6 as they apply to students with disabilities. Candidates are evaluated in the Functional Skiing Tasks used in teaching adaptive lessons. Upon successful completion of the Adaptive Functional Skiing Exam, candidates may take one of the following adaptive alpine specialty exams: 3-Track, 4-Track and Slider, Bi-Ski/Mono-Ski; Cognitive/Visually Impaired.

Successful completion of the Functional Skiing Exam and one of the adaptive alpine specialty exams equals Level 1 Certification.

Note: This is a sample agenda only. Each examiner sets a schedule based on weather, terrain, snow conditions and the candidates taking the exam.

Approximate Timing

8:00 – 8:45 Sign in. Collect professional development logs.

8:45 – 9:00 Introductions – People / Logistics / Exam format / Exam event & group safety

9:00 – 10:00 Indoor Movement Analysis – adaptive-specific video with worksheet and discussion. (When finished, put on ski gear.)

10:15 – 11:30 Ski tasks on hill

11:30 – 12:30 Working lunch

12:45 – 3:15 Movement Analysis – observation and discussion of candidates’ personal skiing

3:30 – 4:30 Examiner scores and prepares result packets

As you can see, there is a lot to get done. Please plan accordingly and help utilize the time wisely. Have equipment readily available and set for your use.
Adaptive Alpine Specialty Exams

There are three different Adaptive Alpine Specialty Exams: Adaptive 3-Track, 4-Track and Slider Exam; Adaptive Bi-ski/Mono-ski Exam; Adaptive Cognitive/Visually Impaired Exam. Each of these Specialty Exams is a one day event in which candidates are tested in their skiing, teaching, medical & technical knowledge and competent use of adaptive equipment relative to the specialty. The exam is scored in three categories: Teaching, Technical and Safety.

Successful completion of the Functional Skiing Exam and one of the adaptive alpine specialty exams equals Level 1 Certification. Successful completion of the remaining two specialty exams equals Level 2 Certification.

Approximate Timing

8:00 – 8:30  Sign in. Collect take home exams and professional development logs.
8:30 – 9:00  Exam Scoring
9:00 – 9:15  Introductions – People / Logistics / Exam format / Exam event & group safety
9:15 – 9:45  Open discussion: What type of students with disabilities might we be assessing and teaching in this module? What type of adaptive equipment might we use?
9:45 – 10:15 Indoor Movement Analysis – adaptive-specific video with worksheet and discussion. (When finished, put on ski gear.)
10:15 – 11:30 Safety, loads & unloads out on hill – riding the lift and safety / assists, loads, unloads, teaching segments
   You are expected to teach safely and to conduct your sample lesson scenario with safety as your first priority!
11:30 – 12:30 Working lunch – Disabilities / Medications / Student assessment / Adaptive teaching model / Learning & teaching styles / Recap Movement Analysis sheets
12:45 – 3:15  Movement Analysis – discuss exam video notes and on-hill scenarios
Adaptive teaching – teaching progressions; sharing information on skill development and exercises; on-hill movement analysis and prescription for change
3:15 – 3:30  Summarize - Any questions / issues prior to finishing exam. Meeting place for results.
3:30 – 4:30  Examiner scores and prepares result packets

As you can see there is a lot to get done. Please plan accordingly and help utilize the time wisely. Have equipment (personal and adaptive), readily available and set for your use. If you are sharing adaptive equipment with anyone else, make sure that you know your personal settings so that you can quickly set it up for yourself.
Common Skills, Movements and Tactics of Skiing

The fundamental skiing skills, balance, rotary, edging and pressure, are the framework used to evaluate ski technique. While there is no final form that epitomizes a correct application and blending of the skills, the observed skiing outcome (effect) can be traced back to skill application and blend (cause), or the lack thereof. Many different combinations can be used to produce similar outcomes. By exploring at each level the many possibilities for deriving a desired response the skier becomes more versatile. This process is called lateral learning. To do this one must identify the body movements that produced the observed outcome.

These basic movements are designed to help accelerate the learning curve for your guest. We have transformed the Skills Concept (balance, rotary, edge and pressure) into a movement-based approach. These fundamental movements can be used as a progression for first time skiers, to identify issues in advanced skiers, or in any sequence that best meets the needs of each guest. We feel some of the key components to accelerating the learning curve are to make our coaching simple, fun, and relevant to each individual.

The following visual cues for effective and ineffective movements are from the Professional Ski Instructors of America Alpine Technical Manual, Second Edition (2005) and are also available in cue cards for on the hill referencing. Used with permission.

**Balance & Stance**
The skier is in balance when he or she can access and affect any of the skills throughout each turn

**Visual Cues to Effective Balance & Stance**

- The entire body is involved and participates in balancing.
- Flexing activity originates from the ankles and is supported by the knees, hips and lower back.
- The hips are centered throughout the turn, promoting a movement forward through the finish and into the new turn.
- The inside leg shortens as the outside leg lengthens, setting up alignment and balance with weight on the outside ski.
- The upper body remains more vertical than the lower body throughout the shaping and finishing phases of the turn, creating body angles which align balance over the outside ski.
- The inside hand, shoulder and hip lead the turn shaping and finish, resulting in a countered relationship between upper and lower body (degree of counter is related to turn size and shape.)
- The skier’s hands are in front of the body to aid balance.

**Visual Cues to Ineffective Balance & Stance**

- Some of the skier’s joints flex too much, and others not enough. For example, too little ankle flex causes the hips to be too far forward.
- The upper body is tipped to the inside throughout the turn.
- The inside ski bends more than the outside ski.
- The skier is stiff or static and gets bounced around by the terrain.
- The skier’s hands and hips are behind the feet.
Edging Skills ➤ Tipping the Feet & Legs
Edging allow the skier to direct the skis to control turn radius, shape and speed.

Visual Cues to Effective Edging
- The edges are released and re-engaged in one smooth movement.
- Both skis tip the same amount early in the turn, with the strongest angles developing in or near the fall line.
- The shins make forward and lateral contact with the boot cuffs as the skier rolls the skis onto the new edges.
- Tension of the inside leg helps maintain alignment. Flexion of the inside ankle directs movement forward and laterally for edge-angle adjustment.

Visual Cues to Ineffective Edging
- The skis tip onto an edge late in the turn (in or after the fall line), creating a fast and heavy edge set at the end of the turn.
- The skier stands straight up before moving into the turn or moves up and back instead of in a diagonal direction toward the new turn.
- The skier uses extra movements, such as lifting the inside ski or stemming to change edges.
- The skier may over-flex the hips or knees to tip the skis onto an edge.
- The skier’s movement into the turn is inaccurate, causing loss of alignment and balance.

Rotary Skills ➤ Turning the Feet & Legs
Rotary movements involve turning some part of the body relative to other parts. Combined with other skills, rotary movements allow the skier to change direction more efficiently.

Visual Cues to Effective Rotary
- The skier’s legs turn underneath a strong/stable torso to help guide the skis through the turn.
- Both skis and legs turn together throughout a parallel turn, with the femurs turning in the hip sockets (instead of the entire hip coming around).
- The skis are tipped and turned an appropriate amount to create a smooth, C-shaped arc.
- Rotary (steering) movements which re-direct the skis at turn initiation are matched in timing and intensity by tipping the skis to prepare for increased forces caused by edge engagement.
- Rotary movements should be progressive, except for athletic moves needed to recover balance.

Visual Cues to Ineffective Rotary
- The shoulders and/or torso initiate the turning of the skis.
- One ski stems or steps to begin the turn.
- The skis pivot or skid throughout the turn, creating a Z-shaped turn.
- The skis turn too quickly, causing over-turning, or do not turn fast enough, causing under-turning.
Pressure Control ►► Flexing & Extending Movements
Pressure control provides the element of touch that promotes a smooth ride at any level of skiing.

Visual Cues to Effective Pressure Control
- The skis flow evenly and smoothly over the terrain, aided by the skier’s joints working together to manage ski-snow interaction. This requires effective pressure management, including both the application and release of pressure (sometimes resulting in one or both skis being off the snow).
- The skis bend progressively throughout the turn, with the entire length engaged.
- The amount of flexion and extension of the skiers legs changes in response to the terrain and pitch of the slope.
- Pressure adjustments during the turn will alter the timing, intensity, and amount of pressure redistribution along the skis and from foot to foot.
- The pole punch or pole plant complements the turn.
- The skier’s upper body remains quiet and disciplined.

Visual Cues to Ineffective Pressure Control
- The skis and the skier get bounced around by the terrain.
- The skier is mostly on the back or front of the skis throughout the turn rather than balanced in the middle of the skis.
- The legs do not exhibit flexion and extension in response to changes in terrain.
- The legs do not exhibit flexion and extension in response to forces in the turn.
- The pole plant is erratic in timing and direction.
- The upper body is flailing and undisciplined.

Directional Movements
Directional movement entails moving toward the new turn using gravity and the skis.

Visual Cues to Effective Directional Movements
- The skier extends into the direction of the new turn to change edges.
- The skis continue to move forward along their edges throughout the turn.
- The skier continues to move forward with the skis throughout the turn.
- The ankles, knees and hips roll forward and laterally to move into the new turn.
- The skier keeps his or her vision forward, looking in the intended direction of travel.

Visual Cues to Ineffective Directional Movements
- The skier moves vertically upward before moving into the new turn.
- The skis pivot or skid as they move through the turn.
- The skier’s outside (downhill) hand, shoulder and hip lead throughout the turn.
- The skier is looking directly at the ski tips or down at the snow, limiting vision.
- The pole swing is directed too close to the tip of the ski or too far behind the foot instead of in the direction of the new turn.

Tactics
Tactics are the implementation of ideas to create a safe, fun and successful lesson.

Good Adaptive Skiing Tactics
- Strong safety consciousness
- Appropriate terrain selection
- Attention to others on the slopes, especially for maneuvers that involve travel across the slope.
Skills and Movements

Balance & Stance

Rotary Skills

Edging Skills

Pressure Control

Turning the feet & legs

Tipping the feet & legs

Flexing & Extending Movements
Three Ranges of Motion

- Side-to-side (Tipping movements)
- Rotation (Turning movements)
- Fore-aft (Flexing/extending movements)
Note: Speed is controlled primarily through deliberate choice of the line (i.e., turn shape) and only secondarily by using skis as brakes, when necessary.
Fore-Aft Balancing Moves

Flex (bend) any of these joints to move the balance point forward; extend (straighten) to move back.

Flex any of these joints to move the balance point back; extend to move forward.

Flexing or extending all joints in proportion makes the skier taller or shorter, without changing fore-aft balance.

In addition to the joints illustrated, the spine and neck are also important fore-aft balance adjustors. In good skiing, most movements begin low, in the feet and ankles, and work their way up the body. Note that stiff alpine ski boots significantly restrict the ankles’ range of motion, so skiers must learn a new set of compensating movements in other joints or the body.

Skier 1 is flexing all joints proportionally, remaining in balance while in a deep crouch. Skier 2 is extending all joints evenly, remaining centered in a tall stance.

Skier 3 has little ankle flex, and compensates by flexing forward at the waist and reaching with the arms to remain in balance. Skier 4 is the opposite, overly flexed at the ankles, very upright in the upper body, These stances are typical of skiers with boots that are too upright (3) or with too much forward lean (4).

These skiers are both out-of-balance due to knees too extended (5) or too flexed (6), and no complementary movements of the other main joints (ankles, hips, or arms).

Note how joints must flex in different combinations for skiers, with stiff boots and restricted ankle motion, vs. non-skiers. A non-skier standing upright and in balance (7) extends all joints, while a skier (8), whose ankles are set at an angle, must compensate by flexing other joints for balance.

When a non-skier crouches low (9), the ankles bend and the heels raise, bringing everything forward, allowing the back to remain somewhat upright. The skier (10), with restricted ankle flex and no heel lift, must bend farther forward at the waist and reach with the arms to compensate. These new movements are ski-specific skills that must be learned.

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Learning Styles
Being able to identify learning styles helps you form a learning partnership with students. The partnership is built through interaction with the student to develop knowledge of his/her unique wants, needs and personality. This is the key to a successful lesson.

Identification of a dominant learning style helps you develop a lesson plan that incorporates multiple teaching styles. BUT do not feel that you have to teach only to that one learning style. People learn through a wide range of visual, auditory and kinesthetic experiences, so try to address each learning style at some time during the lesson.

Realize that you teach to your dominant learning style since we gravitate to the things we know best. Always remember to provide lessons that are well rounded, versatile and student-centered.

Visual Learners
These people learn best by watching and imitating.
- Ski clean demonstrations that are truly illustrating your point.
- Over-exaggeration can destroy the picture.
- Target the students’ attention towards a specific area, i.e. what part of the body or turn.
- Some students visualize the whole picture, some specific parts. Change focus if needed.
- Let the student view from different angles (i.e., front, side, back, coming, going).
- Use video, if available. Guide the students for a positive viewing experience.

Auditory/Cognitive Learners
These people need to verbalize and understand skiing.
- Give clear, concise descriptions using words and descriptions familiar to the student.
- Be precise and to the point. Long, drawn-out explanations are not necessary.
- Paint a picture using words, metaphors, and similes. "It is like a bird walking on eggshells"
- Give a rationale, a WHY, with your descriptions.
- Involve the student. Have them be a part of a verbal exchange, not a monologue from you.

Kinesthetic/Proprioceptive Learners
These learners need to feel their skiing.
- Check your student's equipment...they might not be able to feel things in ill-fitting boots.
- Ask students what they are feeling and go from there.
- Be sure to show and describe what to feel for...integrate the other learning styles.
- If you need to touch the students to position them, ask permission first.
- Groomed terrain and slower speeds are essential for feelers during initial learning.

Note: Kinesthetic refers to things that act outside the body to create feeling, such as the pressure on the leg from the boot. Proprioceptive refers to feelings within the body, such as tightening or stretching different muscle groups to achieve an end result.
Teaching Styles

Command
The teacher controls the all action. Teacher is center of attention; making all the decisions and telling students if they are right or wrong.

Example: The teacher sets up a situation for the students to learn a wedge stop. He/she calls down students one at a time and gives them feedback on their performance.

Task
The teacher outlines the parameters of a task. He explains and demonstrates the task and sets the practice boundaries. Students are free to execute and practice the task within the given boundaries. The teacher may move about and give feedback or ask for variations of the task depending on individual needs.

Example: The teacher shows a wedge christie. He explains the movements necessary to match the skis. Appropriate terrain is selected and the practice area outlined. Students practice while the teacher gives feedback.

Reciprocal
Pairs or groups are established. The roles of "doer" and "watcher" are clearly defined. Task is explained and demonstrated. Practice boundaries, time frame and evaluation criteria are explained by the teacher. Students perform and evaluate each other doing the task. Teacher is free to watch and give feedback.

Example: Teacher asks "doer" to ski wedge christie turns to a designated stopping point. "Watcher" follows and gives "doer" a description of where in the turn the “doer” matched his skis.

Guided Discovery
A series of questions or experiences to guide the students to a specific answer. Each step builds upon the previous step/answer. The teacher leads the group to make the discovery of a specific outcome.

Example: Students on the beginner hill are shown how to sideslip. With practice, they learn to release their edges. The teacher asks a series of questions about the task. "What do you do with your knees to release the edges?" "Can any other part of your body help you release the edges?" "Try your ankles, hips, upper body...Can those move to release your edges?" Students discover how to move their ankles, knees and hips to release their edges for side slipping.

Problem Solving
A problem is posed to the students. The teacher sets a framework, time limit and work area for finding the answer. Working independently or as a team, students find answers to the problem. There may be more than one solution and the teacher accepts all.

Example: Teacher wants the students to learn the perceptual skill of picking the easiest path down a bumpy blue slope. Students must decide which side of the run to ski, where to turn and how big a turn radius to ski and what speed to ski. Some students ski the middle, some the left or right side. Some make big turns, some use a traverse, some make little turns. Some students ski a path around the bumps, some ski from the top of one bump to the top of the next. At the end of the run the teacher has the students share their choice and explain why they thought it was the easiest approach. The teacher must acknowledge every student's solution and provide insight to the other students. This follow-up session is essential to anchor the activity and provide alternatives.
**Teaching Cycle**

*Introduce the Learning Segment*

Establish rapport, creating a fun, open learning environment. Outline the given segment, whether it is the day or one section of learning, defining the general process and outcomes.

*Assess the Student*

Ask a wide range of questions for an initial verbal assessment. Ascertain the students' previous experience with skiing and other related sports. Determine students' goals, experiences, physical and medical needs, and adaptive equipment requirements. Determine what type of learner the student is whether he is process or outcome oriented and his preferred type of feedback. Watch him ski while performing a movement analysis. Assess the skiing to see if the current ability matches expressed goals and expectations.

*Determine Goals and Plan Objectives*

Set goals based on off and on snow movement analysis and the students’ expectations. Compromise if the students’ expectations are too high for their current ability. Formulate a logical progression to address the goal. Clearly state the goal to the student and briefly outline some of the steps they will experience. Choose appropriate terrain and conditions for lesson activities.

*Present and Share Information*

Present the lesson using a variety of teaching styles suitable to each situation. Target different learning styles, so the students will get the maximum benefit. Pace information sharing, practice time, feedback, reinforcement and ski time to keep the lesson fun and the students motivated. Address student orientation to process or outcome as determined during the assessment.

*Guide Practice*

Set practice tasks to the level of the students. Provide specific feedback to each individual. Guide initial practice and set students up for meaningful independent practice, using appropriate guiding and tethering techniques. Provide appropriate reinforcement. Use a variety of approaches to practice with both outcome and process oriented activities.

*Check for Understanding*

Verify physical understanding by comparing their performance to the lesson objectives. Ask questions, when possible, to make sure students cognitively understand the lesson objectives. Check for understanding often, looping back through the lesson if students have not retained the behaviors and cognitive understanding outlined in the lesson objectives.

*Summarize the Learning Segment*

Review the lesson goals and communicate the degree of accomplishment to the student. Preview the next lesson and encourage further development. Establish independent practice guidelines.
Maslow’s Hierarchy of Needs

Abraham Maslow believes that in order to develop in any domain, cognitive, affective or psychomotor, certain basic needs must be met so one has energy available to grow. He visualized this idea as a pyramid with the most pressing needs on the bottom creating a base for the next level. Each subsequent level builds on the previous one so if a lower level is weak the whole structure collapses. This is very important when teaching skiing because a student who is cold or hungry, at the base of the pyramid, is not going to be interested in learning. A student who is totally overwhelmed by the skiing environment and does not have a sense of control over what is going on, lacking elements from the safety/security level, will have trouble focusing on new skills. An instructor needs to be aware of his students’ needs and modify the lesson accordingly.
Guest Centered Teaching (GCT)

Guest centered skiing and snowboarding lessons are positive skiing and riding experiences. By understanding the basic needs of your student and fulfilling those needs, you can create the most positive learning experiences possible.

Most successful instructors have something in common: they consistently exceeded their guest’s expectations! This is because they pay close attention to all of the needs of their guest, both spoken and unspoken. These successful instructors understand that 70% of communication is non-verbal and they look and listen for clues as they formulate a plan for each individual.

As an instructor, you also need to be conscious of your own desires and agendas. The intrusion these personal desires or agendas can minimize your capacity to meet your guest’s needs.

Your Guest

Your guest brings a variety of needs to a lesson. He/she may need to stay warm and safe; know about pole use; look good; not work so hard or keep up with a friend or loved one. Your guest’s needs fall into one of these three categories:

- Motivational Needs
- Understanding Needs
- Movement Needs

Fulfilling motivational needs is the most powerful thing you can do to create a positive guest experience and yet motivational needs can sometimes be the most challenging for you to meet. Perhaps this is because of the intensely personal nature of what motivates an individual. While there are times when motivational needs are the same as movement and understanding needs, they may also be the underlying reason for the movement and understanding needs. Occasionally, motivational needs have nothing to do with the movement and understanding needs; perhaps a guest merely desires company or an orientation to a new part of the mountain.

Understanding needs include a guest’s awareness and understanding of his/her current ability or inability. Working in this category offers you an opportunity to clear up misunderstandings, as well as relate what the guest is learning to other needs he/she may have.

Movement needs are the most technical aspect of GCT. Through movement analysis, you must first discover which movements are hindering your guest’s skiing/snowboarding performance and then determine the single most important movement (SMIM), which will improve his/her experience. After your guest has become proficient in that SMIM, you can then select the next SMIM which will improve his/her experience. You also need to remember that movement needs can be impacted by your guest’s equipment, so make equipment adjustments as necessary throughout the lesson.

Keep in mind that while most guests describe movement needs as the reason for taking a lesson, they are generally only on the surface of the deeper understanding and motivational needs.

Instructor Behavior

Identification activities help you determine the needs of your guest. The foundation of a positive skiing/snowboarding experience rests on your ability to accurately identify your guest’s motivational, understanding and movement needs. You can identify these needs by asking questions, making observations and verifying any assumptions.

Facilitation activities are your lesson planning activities, which include anything you do or say in response to an identified need. They can be as simple as answering a question, going in to warm up, explaining a new task or just plain skiing/riding a lot! What is most important for your guest determines the activities you choose.
## PSIA-Rocky Mountain • GCT™ Lesson Planning Worksheet

### Student Profile

| Name: | British Columbia (BC) | Age: 12 years | Physical: 

- What does the student say s/he wants?
- What do you think (infer or assume) the student needs?
- Why do you think so? (Be specific—words, non-verbal cues, background information.)
- How will you probe more deeply and verify your conclusions and assumptions (questions, observations)?
- What non-skiing background can you bring into the lesson (hobbies, passions, athletic activities, skills, learning styles, career choices, education, family, fitness, energy, personality, equipment; positive & negative transfer)?

| Equipment: | 

- What does the student understand about skiing?
- What might the student misunderstand about skiing?
- How does the student’s understanding and/or misunderstanding affect his/her Movements and Motivational Needs?
- How important is the student’s NEED for understanding? (Is better understanding for its own sake a Motivational Need for this student?)
- Identify the student’s Learning Preferences.
- Why do you draw these conclusions?
- How will you verify your conclusions?

### MOTIVATIONAL NEEDS

| UNDERSTANDING NEEDS | MOVEMENT NEEDS |

- Identify ability level and type of turn
- Overall picture—what stands out?
- Assess stance
- Assess equipment setup & alignment issues
- Identify intent (defensive, offensive, other)
- Describe rotary mechanics (Upper body—Rotation, Counter-rotation, Blocking Pole Plant; Let Steering; combinations, different turn phases)
- Describe edging movements and effects
- Describe flexion/extension & pressure control movements and effects
- Describe ski performance
- Describe “rhythm & flow”
- Identify Cause & Effect relationships
- Prioritize Movement Needs

### IDENTIFICATION ACTIVITIES

| FACILITATION ACTIVITIES |

- What will you do specifically to address the student’s expressed desires?
- What will you do specifically to address the student’s inferred motivational needs (underlying needs)?
- If what they say they want (expressed desires) and what you think they need (inferred needs) are not the same, how will you address this?
- What specific non-movement & non-understanding activities can you bring into the lesson, to help make it a success for this individual?
- How are your Understanding and Movement activities relevant to the student’s Motivational needs?
- How will you create this relevance in the student’s mind?

- How will you address the student’s learning styles?
- What explanations will you give, and how will you give them? (How extensive, what teaching styles, why?)
- Will you address potential misunderstandings? Why, or why not? How?
- How will addressing these Understanding Needs affect Movement and Motivational Needs?

- What exercises, progressions, or other activities will you do with this student?
- How will you present these activities? (Teaching styles, terrain, pacing, etc.) Why?
- How will these activities specifically address the prioritized Movement Need(s)?
- Based on cause & effect analysis, how will these changes affect other movements and ski performance?
- How are these activities and changes relevant to the student’s Motivational and Understanding Needs?
- How will you create this relevance in the student’s mind?
### PSIA-Rocky Mountain • GCT™ Lesson Planning Worksheet

**Student Profile**

| Name: |  |
| Age: |  |
| Physical: |  |
| Equipment: |  |
| Background: |  |

**Skiing Experience**

### MOTIVATIONAL NEEDS

- What does your guest want (expectation) and why do they want it?

### UNDERSTANDING NEEDS

- What does your guest know about skiing and what are their learning preferences?

### MOVEMENT NEEDS

- Ski Performance "Effect"
- Body Performance "Cause"

MA: One skill through the phases of the turn or all skills in one phase (examiner’s choice of phase).

- Initiation:
- Shaping/Control:
- Finish:

### IDENTIFICATION ACTIVITIES

- How will the activities of the lesson be relevant to your guest’s motivational needs?

### FACILITATION ACTIVITIES

- How will you create a new understanding of skiing for your guest?

### Prescription for change

- Which activities will meet your guest’s movement needs?
- How will these new movements help your guest meet their goals/outcome?
Movement Analysis

For the exam, you will be shown a video of different skiers. Through technical discussion of levels 1-6, you are expected to write down and discuss:

Observation and Description

- Determine student profile: diagnosis, ability, equipment, expectations for lesson etc.
- Set up your observations by choosing a task within the ability of the student. Demonstrate and then have the student perform the task.
- Observe student performing the task. Describe the student's behaviors and movement patterns in non-judgmental, positive terms.
- Relate mechanics to skill blend and/or movement pools.
- How was the turn started, shaped and finished? Did this effect skill blend or turn shape?
- Make your description as complete as possible. The more complete the picture the easier it will be to determine cause and effect relationships.

Cause and Effect Relationships

- Most of the time one sees the effect. Look for the cause, why it is happening.
- If there is a problem, specify where in the turn it occurs. Things that happen in one part of the turn affect other parts of the turn.
- If there is not a problem specify how the student’s movement allows for effective skiing.

Prescription for Change

- Target the fundamental movement (i.e. cause) that is to be changed.
- Prioritize what should be done 1st, 2nd, and 3rd, in order to achieve the specific outcome.
- Determine whether the activities will encompass the “whole” picture or be broken down into smaller steps.
- State the goal and explain why you have chosen a particular focus.

Lesson Plan

- Create a lesson plan based on the needs of the student.
- Make sure the goal/skill focus is relevant and activities address that goal/skill.
- Pace the information to allow for comprehension and plenty of practice time.
- Loop back through the goal setting stage if the expected results are not forthcoming.
- Keep students involved.
Creating a Lesson Plan from Movement Analysis

Student Profile
"This skier is..."
1. What level skier?
2. What type of turn? Open parallel? Wedge Christie?
3. What gender and age?
4. What past experience?
5. What skills in other sports?
7. How healthy? Any past or present injuries? How well conditioned? Does he/she work out regularly or not at all? How energetic?

Description of Mechanics
"I see this skier doing..."
1. What does the skier do to start the turn?
   - rotation - counter rotation - fulcrum
   - push off - heel thrust - combination
2. How does the skier control and finish his/her turn?
   - leg rotation - steering - counter rotation
   - rotation - angulation - combination

Cause and Effect Relationships
"Because of ______, the result is..."
1. Based on your observations of mechanics, what are the results?
   - turn shape - skill blend - balance
   - linkage - control - combination

Prioritize
"I would work on ______ because..."
1. Set one goal. What is most important?
2. Provide a rationale for your decision. Why?

Lesson Plan
"Some of the activities I would do with this person are..."
1. Make sure the activities reflect your goal.
2. Combine activities of similar mechanics.
3. Explain your exercises and their focus. One exercise can be used many ways.
4. Activities don't need to be linked exercises...what focus could you give the student? How and where might you ski them?
5. What is the end result, or outcome of your lesson plan?
## Movement Analysis Filter

<table>
<thead>
<tr>
<th>Skis Performance</th>
<th>Body Performance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>“Effect”</strong></td>
<td><strong>“Cause”</strong></td>
<td><strong>“Where, What &amp; How”</strong></td>
</tr>
<tr>
<td>Bend (Pressure)</td>
<td>Flexion / Extension (Pressure Control) Movements</td>
<td>Transition / Initiation</td>
</tr>
<tr>
<td>Fore/Aft</td>
<td>Front / Back</td>
<td>Shaping</td>
</tr>
<tr>
<td>Ski/Ski</td>
<td>Foot / Foot</td>
<td>End / Finish</td>
</tr>
<tr>
<td>Maintenance / Change</td>
<td>CM Closer to / Farther from Skis</td>
<td></td>
</tr>
<tr>
<td>Twist (Rotary)</td>
<td>Turning (Rotary) Movements</td>
<td></td>
</tr>
<tr>
<td>Edge (Edge)</td>
<td>Tipping (Edging) Movements</td>
<td></td>
</tr>
</tbody>
</table>

### DIRT – “How”
- **Duration** - the length of time something continues or exists
- **Intensity** - magnitude, as of energy or a force per unit of area, volume, time, etc.
- **Rate** - degree of speed, progress, etc. Pace.
- **Timing** - the sequential relations that any event has to any other, as past, present, or future

**Step 1:** Describe the skis’ performance in a specific location of the turn.
**Step 2:** Describe the body parts and their specific movements in that specific location of the turn that creates the skis’ performance.
**Step 3:** Construct Cause & Effect Relationships (4) and describe how they affect skier’s balance/stance throughout turn.
### Worksheet

Ski Performance ↔ Body Performance in Phases of Turn

<table>
<thead>
<tr>
<th></th>
<th>Transition / Initiation</th>
<th>Shaping</th>
<th>Finish / Transition</th>
</tr>
</thead>
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<tr>
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<td>ΘΘ</td>
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<td>ΘΘ</td>
<td>ΘΘ</td>
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<tr>
<td><strong>Maintain</strong></td>
<td>ΘΘ</td>
<td>ΘΘ</td>
<td>ΘΘ</td>
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<td><strong>Rotary</strong></td>
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<td><strong>Edge</strong></td>
<td>ΘΘ</td>
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</tbody>
</table>
Disabilities and Medications to Study for Your Level 1 & 2 Exam

As an adaptive instructor, you are expected to know the common disabilities that might require the use of adaptive ski equipment or techniques, as well as the medications that these individuals might use. You may be tested verbally on the following disabilities and medications throughout the course of your Level 1 & 2 exam or as part of your take home exam.

It is expected that you have basic knowledge of each of the disabilities listed for your specialty exam, including symptoms and the special considerations for skiing. For each category of medication, you should know the uses and side effects. You are not expected to know specific brand names for each classification of medicine.

Level 1 & 2 Bi-Ski & Mono-Ski Exam

- Amputation
- Balance impairments
- Cerebral Palsy
  - Spastic
  - Athetoid
  - Ataxic
  - Mixed CP
- Cerebrovascular Accident
- Epilepsy
- Intellectual Disability (Mental Retardation)
- Limb Deficiency
- Multiple Sclerosis
- Muscular Dystrophy
- Neuromuscular Diseases
- Paralysis & Paresis
- Polio
- Post Polio Syndrome
- Spina Bifida
- Spinal cord injuries
- Traumatic Brain Injury

Level 1 & 2 3-Track, 4-Track & Slider Exam

- Amputation
- Balance impairments
- Cancer
- Cerebral Palsy
  - Spastic
  - Athetoid
  - Ataxic
  - Mixed CP
- Cerebrovascular Accident
- Congenital anomalies of hip/leg/foot
- Epilepsy
- Limb Deficiency
- Multiple Sclerosis
- Muscular Dystrophy
- Paralysis & Paresis
- Polio
- Post Polio Syndrome
- Spina Bifida
- Spinal Cord Injuries
- Traumatic Brain Injury

Level 1 & 2 Cognitive & Visual Impairment Exam

In addition to knowing the following disabilities for the Cog/VI exam, you must also understand vision terms (acuity, depth of perception, field of vision, legal blindness and tunnel vision) and be able to describe how the eye works.

- Alzheimer’s Disease
- Attention Deficit Disorder
- Autism Spectrum Disorders
- Cataracts
- Cerebral Palsy
  - Spastic
  - Athetoid
  - Ataxic
  - Mixed CP
- Cerebrovascular Accident
- Cognitive Disability
- Corneal Diseases
- Detached Retina
- Developmental Disability
- Diabetes
- Diabetic Retinopathy
- Down Syndrome
- Epilepsy
- Fetal Alcohol Syndrome
- Fragile X Syndrome
- Glaucoma
- Hemiplegia
- Intellectual Disability (Mental Retardation)
- Learning Disabilities
- Macular Degeneration
- Myopia
- Post Traumatic Stress Disorder
- Retinitis Pigmentosa
- Strabismus
- Sensory Processing Disorder
- Traumatic Brain Injury
Medications – All Specialty Modules

- Analgesics
- Antibacterials
- Antibiotics
- Anticholinergics
- Anticoagulants
- Anticonvulsants
- Antidepressants
- Antidiabetics
- Antiemetics
- Anti-inflammatory
- Antispasmodics
- Chemotherapy
- Diuretics
- Immunosuppresives
- Muscle Relaxants
- Nonsteroidal anti-inflammatory drugs (NSAID’s)
- Psychostimulants
- Sedatives
- Steroids

Practice Evaluation Scenarios

Student Profiles

1. A woman in her mid 50’s with macular degeneration.
2. 13 year old boy with Down syndrome whose parents want him to “go for it” in Special Olympics but he would rather watch Spiderman cartoons.
3. A man doing “wheelies” in front of the ski school desk asks to receive a ski lesson.
4. College coed who had retinal blastoma and is currently taking a semester off from school due to a recurrence of malignant cells. Never skied before, wants to learn.
5. Teenage girl with full leg metal leg braces on both legs who walks with forearm crutches and uses a wheelchair.
6. A young boy with spastic quadriplegic CP travels slowly up to the desk to confirm his lesson.
7. College student who lost his eyesight in a violent car accident two years ago and has not skied since the accident.
8. Student has a T-5 SCI.
9. At Christmas, a well known model who has a BK amputation asks for lessons so that she can ski in France after a February fashion show in Paris.

Questions

1. What are the possible cognitive, affective and physical manifestations associated with the student diagnosis.
2. How would a cognitive assessment be conducted? Affective assessment? Physical assessment?
3. Where is the assessment conducted?
4. What aids does the student use? Why are they used? How will this impact skiing?
5. What could be going on that is hidden? Medications?
6. What type of equipment may be used? Is there more than one possibility, and if so how would one determine which to use? Does it always have to remain the same? What factors determine this? What methods can be used to educate/convince a student to change equipment?
7. Who uses guiding systems? What type of guiding system might be used? Define the system.
8. What are the safety concerns with this student?
9. Explore learning styles the student may prefer. Discuss teaching styles that support the learning preference.
10. Think of the Teaching Model. Can it be used as is or will accommodations need to be made?
Extended Study Questions

These study questions are designed to make you think, pursue answers, discuss issues with trainers and friends as you broaden your knowledge of adaptive skiing. To get the most from this section write answers out before talking to others. Unless specified otherwise, every question should be answered for each specialty.

Equipment

1. List the different makes of mono and bi-skis. Describe their parts with associated functions.
2. Discuss the advantages/disadvantages of the different makes of mono and bi-skis.
3. Describe how to fit a skier into the seat of a bi or mono-ski.
4. How is a dowel test performed? What is its purpose? As a result is weight ever added to a sit-down ski? When? Where? Why?
5. Measure outriggers for a mono-skier, bi-skier, 3-tracker, 4-tracker, including hand-held and fixed riggers for the bi-ski. What is the function(s) of outriggers for each of these skiers?
6. List other equipment a 3-T or 4-T skier may use including of ski and boot types; appliances for obtaining a flat ski, fore/aft balance, equalizing fore/aft pressure, and lateral control.
7. What other equipment may the instructor use to help with a 4-T lesson? Why?
8. Describe different types of hip/leg/back braces worn by 4-trackers. How do these devices work? What is done with the braces during a lesson? What is their impact on the skier?
9. Discuss methods to retain and/or pad the residual limb of a 3-tracker.
10. What equipment may a student with a visually or cognitively challenge use? Why?
11. Discuss different types of communication equipment a blind or low vision skier and guide may use.
12. List physical aids that may be used by an instructor of students with visual or cognitively challenges. Why might these aids be used?
13. List, from head to toe, clothing and accessories that may be used by students with visual or cognitively challenges?

Safety

1. Discuss safety issues connected with outrigger use. Consider hand held and fixed, stand-up and sit-down outriggers.
2. Discuss the challenges to both the instructor and student when physical assists are used. This includes loads, unloads, helping the student up after a fall, as well as skiing assists.
3. Investigate how to help a student transfer a student to and from mono and bi-skis? and in and out of bindings.
4. Discuss the challenges to both the instructor and student when working on crowded slopes, hard or icy conditions or amid active snow guns.
5. What can an instructor do to prevent being separated from students with visual or cognitively challenges?
6. What should an instructor do if separated from their student with visual or cognitively challenges?
Teaching and Technical

1. List several reasons for teaching a straight run. (even in a bi-ski) This emphasizes which skill?
2. What role do outriggers play in a straight run? In beginning turns? Where are they positioned?
3. What skill(s) are emphasized in making a beginning turn? What body mechanics are used to develop this skill? What is/are the ski(s) doing at the beginning phase of the turn?
4. Answer question 3 for wedge turns, wedge christie and open parallel.
5. Cite the skills hierarchy. How do the skills interact?
6. How do the skills and the movement pools relate to each other?
7. What is the purpose of a sliding rigger touch? What body movements create this action?
8. Describe the differences/similarities between teaching with fixed and hand-held riggers.
9. Describe the positioning of a skier in the seat of a sit-down device. What advantages/disadvantages does this give?
10. Describe the placement of a residual limb while skiing. Why is the placement important? What can happen if the limb is in the improper alignment?
11. Where do rotary forces originate with a 4-track skier? Is it the same for all 4-track skiers?
12. What are the similarities/differences between teaching any specialty and 2-track skiing?
13. What determines whether a turn will be skidded or carved, especially in a bi-ski?
14. What adaptations of the able-bodied skiing model are used with the different specialties?
15. What are the common learning styles for students with visual or cognitively challenges to learning? What type of teaching styles work with these learning styles?
16. Describe the different communication styles an instructor may employ. (especially with a cognitively impaired student) What are the advantages/disadvantages of each?
17. What type of behavior challenges might be found in cognitive challenges? What methods can the instructor use to deal with these behaviors effectively?
18. Define the differences between cognitive, psychological and psychomotor functions of the body.
19. What purpose does dragging a pole hold for a blind or low vision skier?
20. Describe different types of guiding systems.
21. Describe different positions from which a guide may work. What are the advantages/disadvantages of each position?

Disabilities & Medications

1. Who is a candidate for bi-skiing? mono-skiing, 3-tracking, 4-tracking, Guide services or a specialized cognitive related disability lesson? Why?
2. How is a potential skier assessed for skiing?
3. What questions should be asked about the students’ diagnosis, medications, treatments, medical needs and athletic abilities?
4. For each specialty/disability cite classes of medications and their side effects that may be used. Know specific examples for each class.
5. List the vertebrae and their associated nerves, muscles and body functions.
6. Define autonomic dysreflexia. List the signs/symptoms, when it occurs and the level of injury with which it is typically associated.
7. What precautions must one take if the student has spinal stabilizers? Think about stand-up skiers as well as sit-down skiers.
8. How does an amputation affect balance and strength? Make sure this is answered for mono and bi-ski as well as 3 and 4-track.
9. What precautions must one take to protect a residual limb? A brace? A prosthesis worn while skiing? Should Skier with an amputation wear their prosthesis while 3-tracking? Why or why not?
10. Define and describe as much as you can about the following conditions. They are listed under the specialty where they are commonly seen but that does not mean they cannot show up in another specialty. This is not an exhaustive list!
Appendix A: Resource List

This document has been developed to provide you with some of the basic materials you need to prepare for your Adaptive Level 1 & 2 exams. However, it is by no means comprehensive and you should study and be very familiar with the following resources.

PSIA-Rocky Mountain-AASI *Alpine Pocket Summaries All Levels* (free download)  

PSIA-Rocky Mountain-AASI *Adaptive Exam Guide for 3-track / 4-track* (free download)  

PSIA-Rocky Mountain-AASI *Adaptive Information Guide: Adaptive Encyclopedia for the exam process* (free download)  

PSIA-Rocky Mountain-AASI *Adaptive Exam Guide for Bi-Ski* (free download)  

PSIA-Rocky Mountain-AASI *Adaptive Exam Guide for: Cognitive Disabilities* (free download)  

PSIA-Rocky Mountain-AASI *Adaptive Exam Guide for Mono-Ski* (free download)  

PSIA-Rocky Mountain-AASI *Adaptive Information Guide: Ski Bike* (free download)  

PSIA-Rocky Mountain-AASI *Adaptive Information Guide: Slider* (free download)  

PSIA-Rocky Mountain-AASI *Adaptive Exam Guide for Visually Impaired* (free download)  


For lesson observation, contact a PSIA-RM Member School: [http://www.psia-rm.org/memberSchool.php](http://www.psia-rm.org/memberSchool.php)

For PSIA-RM Education Clinics and Certification Courses: [http://www.psia-rm.org/events.php](http://www.psia-rm.org/events.php)

For Smart Style (Freestyle Terrain Safety Initiative): [http://www.nsaa.org/nsaa/safety/smart%2Dstyle/](http://www.nsaa.org/nsaa/safety/smart%2Dstyle/)

For Your Responsibility Code: [http://www.nsaa.org/nsaa/safety/know_the_code.asp](http://www.nsaa.org/nsaa/safety/know_the_code.asp)
Appendix B: Adaptive Demonstration Equivalencies for Mono Ski

**Gliding Wedge**
- Quiet upper body balanced over the middle of the ski
- Skeletally stacked, upright (static) upper body
- Equal and constant pressure on both outriggers with the snow
- Outriggers remain in close proximity to the mono ski (i.e., shoulder width apart making snow contact between binding toe and tip of ski.)

**Braking Wedge**
*(should be done in conjunction w/ gliding and include a near stop)*
- Quiet upper body balanced over the middle of the ski
- Outriggers remain in close proximity to the mono ski (i.e., shoulder width apart making snow contact between binding toe and tip of ski.)
- Equal, constant, and progressive pressure of both outriggers
- Outriggers create a braking effect as the tail of the outrigger tips are progressively pushed forward into the snow (this movement is created by pushing the hands forward while dropping the shoulders and flexing/“rounding” the spine). This is the braking technique described in the latest edition of the PSIA Adaptive Manual. An improved braking technique has been developed since the writing of the Adaptive Manual and may be substituted for this demo. See Below:

-OR-
- Outriggers create a braking effect as the outrigger tips are rotated outward creating a “diverging wedge”. Slowing can be increased or decreased by increasing or decreasing the angle of outward rotation and/or by increasing or decreasing the amount of outrigger pressure applied to the snow.

**Wedge Turns**
- Tall stance and balanced upper body over the midline of the ski.
- Symmetrical outrigger steering (at turn initiation both outrigger tips are pointed in the direction of the next turn and this movement is held throughout the shaping phase of the turn)
- Minimal countering movements of the upper body other than the head is always orientated “downhill” (in the direction of the “hub” of the next turn) and never across the hill.
- As rotary movements in the turn develop, the ski and outriggers are steered across the hill, increasing pressure by terrain dictated edging on the inside edge of ski and both riggers.
- Although the hips and upper body remain basically centered over the midline of the ski, the center of mass may move slightly to the inside of the turn on steeper terrain (“terrain dictated edging”). A slight amount of banking is acceptable in order to control the edge angle.
- Emphasis is on producing a rounded, deliberate turn shape, and throughout the turn maintaining the tips of both outriggers in close proximity to the tip of the ski (re. there is no “countering movements of the outrigger” or “reaching downhill”)
- The Wedge Turn shows the Fundamental Skills in a slow moving situation, emphasizing the rotary movements created by the outriggers with limited edge and pressure movements to maintain constant speed and radius of the turn.
- A desired outcome is to achieve a sense of rhythm, flow, and control from turn to turn, while maintaining a constant speed relative to the shape of the turn.
**Wedge Christie**

- Speed is greater than that of a wedge turn and should be constant throughout the task relative to the shape of the turn.
- The ski and lower body is allowed to turn slightly more than the upper body, resulting in a slightly countered relationship with the ski (i.e., head and shoulders slightly countered in the direction of the next turn). This increased upper body countering encourages angulated edging movements. However, angulation is minimal as related to the terrain appropriate for this demo.
- Asymmetrical outrigger steering (at turn initiation one outrigger tip is pointed in the direction of the next turn) and “matched” or moved (toward the midline) back to the neutral position prior to or after the fall line the turn (similar to the “match” of the skis of a standup skier doing a wedge Christie). There is no active “reaching” of the outrigger downhill although the downhill outrigger will be farther away from the mono ski than in the wedge turn because of the increased counter of the upper body.
- As rotary movements are accomplished, there is a release of the ski’s edge and slight movement of center of mass into the new turn. Edge release is initiated by a minimal upper body extension in the direction of the new turn.
- Edge angle and pressure on the inside edge of the ski, is slightly greater and occurs earlier than in a wedge turn. This results in the riggers becoming quite light and flat, making it easy to symmetrically guide into a parallel relationship with the ski. This "matching" occurs at or after the fall line, coinciding to the Christie phase of the turn. (Similar to what occurs with two skis.)
- Throughout the turn, the skier demonstrates dynamic balance by maintaining a “tall athletic stance” with slightly rounded shoulders and flexed spinal column.
- Progressive steering combined with increased speed and a relatively flat ski produce a round, skidded arc.

**Basic Parallel**

- Speed is greater than that of a wedge Christie and should be constant throughout the task relative to the shape of the turn.
- Nearing the completion of a prior turn the skier’s upper body is slightly flexed and countered in the direction of the next turn. With pressure predominately on the inside edge of the ski, the outside rigger is in an arc away from the midline, pointed toward the “hub” of next turn. This asymmetrical outrigger steering movement (from the outside/downhill outrigger) corresponds with a countered upper body in the direction of the next turn (outrigger, arm, and shoulder all move together as the upper body finishes the old turn in a countered position.)
- Outrigger movements and upper body separation correspond to the turn size (i.e., long radius turns correspond to a 1 and 11 o’clock countering and short radius turns require a 3 and 9 o’clock movement much as a pole touch for a stand-up skier ) and to the student’s movement range.
- As the skier starts extending toward the new turn, a change in pressure dominance begins from the old outside edge to the new inside edge.
- Continuation of the above movements results in a cross over or lateral movement of the center of mass and a flattening of the skis, which combined with the guidance of both ski and rigger toward the fall line. Edging movements are achieved by angulation of the spine/torso with shoulders level to the fall line relative to the student’s movement range.
- The inside rigger and ski complement the actions of the dominant inside edge of ski. Progressive steering combined with flexion down and inward regulates edging and pressure, which are progressive throughout the turn.
- The increased efficiency of rotary movements (caused by the increased distance between rigger tip and center of rotation) allows for a much earlier match of the inside/steering rigger and shorter duration of differential friction caused by rigger tip/snow contact.
- A progressive increase of edging and pressure in the turn reduces the amount of skid and helps shape the arc of the turn, which should be fairly consistent throughout.
**Dynamic Parallel**

- There is refinement of all aspects of the Fundamental Skills of open parallel and they are performed at greater speed with more precision. Speed should remain constant throughout the task relative to the shape of the turn.
- Ski is used as a working component in the turn to achieve desired turn shape and type. Characteristics such as ski flex and sidecut are accounted for. The other equipment, such as seat and shock/spring are also accounted for. Turns are carved, but not railed. Stance is functional for the speed, radius and terrain being utilized.
- At turn initiation the downhill outrigger is moved farther away from the midline in a “reaching” movement. This “reach” with the outrigger is simultaneous with an active cross-over of the center of mass from the old inside edge to the new edge. Pressure transfer at turn initiation is very deliberate, and commitment of the center of mass toward the new turn is very active. All movements contribute toward carrying the energy from one turn to the next.
- The increased efficiency of rotary movements (caused by the increased distance between rigger tip and center of rotation because of the “reaching” movement toward the next turn) allows for a much earlier match of the inside/steering rigger and shorter duration of rigger tip/snow contact.
- Edge/pressure engagement is taking place before the fall line.
- Intensity, duration, and timing of movements determine the size, shape, and speed of the turn, i.e. short, medium, long, gliding, and braking.
Appendix C: Adaptive Demonstration Equivalencies for Bi Ski

Gliding Wedge to Braking Wedge

- Quiet upper body balanced over the middle of the skis.
- Skeletally stacked, upright (static) upper body.
- Equal, constant, and progressive pressure on both outriggers with the snow.
- Outriggers remain in close proximity to the bi ski making snow contact in line with the skier’s shoulders and hips. Skiers arms are slightly flexed (almost straight) allowing for strong balancing movements through outrigger use.
- Outriggers create a braking effect as the tail of the outrigger tips are progressively pushed forward into the snow (this movement is created by pushing the hands forward while dropping the shoulders and flexing/ “rounding” the spine). This is the braking technique described in the latest edition of the PSIA Adaptive Manual. An improved braking technique has been developed since the writing of the Adaptive Manual and may be substituted for this demo. See Below:

-OR-

- Outriggers create a braking effect as the outrigger tips are rotated outward creating a “diverging wedge”. Slowing can be increased or decreased by increasing or decreasing the angle of outward rotation and/or by increasing or decreasing the amount of outrigger pressure applied to the snow.

-Alternative-

- If the skier is physically unable to perform a slowing or braking maneuver utilizing outriggers, a single carved turn to a stop may be substituted. The turn is performed by increasing pressure on one outrigger and tipping the bi ski onto its edges causing the bi ski to carve in the direction of the tipping.
- The opposite outrigger is utilized to control balance and manage the extent of edging.
- Once initiated, the turn is held across the fall line to a gravity assisted stop.

Wedge Turns

- Tall stance with a balanced upper body over the midline of the skis.
- Maintain a constant speed throughout the turn.
- Utilize “push off, drop ‘n block” to create ski design turns. At turn initiation, pressure on the uphill outrigger is increased as the skier “pushes off” to create an active crossover movement (skier’s center of mass is moved from inside of old turn to inside of new turn). The downhill outrigger is utilized to “block” the skier from over-edging, to assist with balance, and refine the amount of edging to correspond to the desired radius and speed of the turn.
- Minimal countering movements of the upper body other than the head is always orientated “downhill” (in the direction of the “hub” of the next turn) and never across the hill.
- A slight amount of banking is acceptable in order to control the edge angle.
- Emphasis is on producing a rounded, deliberate turn shape, and throughout the turn maintaining the tips of both outriggers in close proximity to the bi ski (re. there is no “countering movements of the outrigger” or “reaching downhill”)
- The Wedge Turn shows the basic skills of skiing in a slow moving situation, prioritizing edging movements over rotary, creating ski designed turns to maintain constant speed and radius of the turn.
- A desired outcome is to achieve a sense of rhythm, flow, and control from turn to turn, while maintaining a constant speed relative to the shape of the turn.
**Wedge Christie**

- Speed is greater than that of a wedge turn resulting in a skid after the fall line relative to the shape and speed of the of the turn.
- Utilize “push off, drop ‘n block” to create ski design turns.
- The ski and lower body is allowed to turn slightly more than the upper body, resulting in a slightly countered relationship with the ski (i.e., head and, if physically possible, shoulders slightly countered in the direction of the next turn). This increased upper body countering combined with higher edge angles and strong “blocking movements with the downhill outrigger encourages angulated edging movements.
- Edge angle and pressure on the inside edge of the downhill (outside) ski, is greater and occurs earlier than in a wedge turn. Combined with steeper terrain, increased speed and varied turn radius a spontaneous skid will occur after the skier passes through the fall line.
- To control the skid, the tip of the downhill outrigger is pointed in the direction of the next turn creating rotary forces equal to or slightly greater than the skid.
- Before the finish of the turn the downhill outrigger is “matched” or moved (toward the midline) back to the neutral position (similar to the “match” of the skis of a standup skier doing a wedge Christie).
- Throughout the turn, the skier demonstrates dynamic balance by maintaining a “tall athletic stance” with slightly rounded shoulders and flexed spinal column.
- Amalgamate a combination of ski design turns with a slight displacement of the skis (skid) as centrifugal “forces” increase after the fall line.

**Basic Parallel**

- Speed is greater than that of a wedge Christy turn and should be constant throughout the task relative to the shape of the turn.
- Outriggers have been lengthened making snow contact between binding toe and tip of ski with a significantly increased bend in the elbows compared to the wedge and wedge Christy demonstration.
- Asymmetrical outrigger steering (at turn initiation one outrigger tip is pointed in the direction of the next turn) and “matched” or moved (toward the midline) back to the neutral position prior to or after the fall line of the turn. There is no active “reaching” of the outrigger downhill although the downhill outrigger will be farther away from the bi ski than in the wedge Christy turn because of the increased counter of the upper body.
- As rotary movements are accomplished, there is a release of the ski’s edge and slight movement of center of mass into the new turn. If physically possible, edge release is initiated by a minimal upper body extension in the direction of the new turn.
- Throughout the turn, the skier demonstrates dynamic balance by maintaining a “tall athletic stance” with slightly rounded shoulders and flexed spinal column.
- Progressive outrigger steering combined with increased speed and a relatively flat ski produce a round, skidded arc.
**Dynamic Parallel**

- Speed is greater than that of basic parallel and should be constant throughout the task relative to the shape of the turn.
- Nearing the completion of a prior turn the skier’s upper body is slightly flexed and countered in the direction of the next turn. With pressure predominately on the inside edge of the ski, the outside rigger is in an arc away from the midline, pointed toward the “hub” of next turn. This asymmetrical outrigger steering movement (from the outside/downhill outrigger) corresponds with a countered upper body oriented in the direction of the next turn (outrigger, arm, shoulder and torso, if possible, all move together as the upper body finishes the old turn in a countered position.)
- Outrigger movements and upper body separation correspond to the turn size (i.e., long radius turns correspond to a 1 and 11 o’clock countering, with 12 o’clock being aligned with the long axis of the ski toward the ski tip and short radius turns require a 3 and 9 o’clock orientation of the upper body and downhill outrigger at the finish of the prior turn; much as a pole touch for a two track skier) and to the student’s physical ability and movement range.
- As the skier starts extending toward the new turn, a change in pressure dominance begins from the old outside edge to the new inside edge.
- Continuation of the above movements results in a cross over or lateral movement of the center of mass and a flattening of the skis, which combined with the guidance of both ski and rigger toward the fall line. Edging movements are achieved by angulation of the spine/torso with shoulders level to the fall line relative to the student’s physical ability and movement range.
- The inside rigger and ski complement the actions of the dominant inside edge of ski. Progressive steering combined with flexion down and inward regulates edging and pressure, which are progressive throughout the turn.
- The increased efficiency of rotary movements (caused by the increased distance between rigger tip and center of rotation) allows for a much earlier match of the inside/steering rigger and shorter duration of differential friction caused by rigger tip/snow contact.
- A progressive increase of edging and pressure in the turn reduces the amount of skid and helps shape the arc of the turn, which should be fairly consistent throughout.
Appendix D: Adaptive Demonstration Equivalencies for 3-Track

**Gliding Wedge to Braking Wedge**

- Quiet upper body balanced over the middle of the ski.
- Skeletally stacked, upright (static) upper body with a slight flex of the ankle, knee, hips, and spine.
- Equal, constant, and progressive pressure on both outriggers with the snow.
- Outriggers remain in close proximity to the ski (i.e., shoulder width apart making snow contact between binding toe and tip of ski).
- Outriggers create a braking effect as the tail of the outrigger tips are progressively pushed forward into the snow (this movement is created by pushing the hands forward while dropping the shoulders and flexing/“rounding” the spine). This is the braking technique described in the latest edition of the PSIA Adaptive Manual. An improved braking technique has been developed since the writing of the Adaptive Manual and may be substituted for this demo. See Below:

-OR-

- Outriggers create a braking effect as the outrigger tips are rotated outward creating a “diverging wedge”. Slowing can be increased or decreased by increasing or decreasing the angle of outward rotation and/or by increasing or decreasing the amount of outrigger pressure applied to the snow.

**Wedge Turns**

- Tall stance with a balanced upper body over the midline of the ski.
- Maintain a constant speed throughout the turn.
- Emphasis is on leg steering (at turn initiation steering with the leg throughout the shaping phase of the turn).
- Symmetrical outrigger steering may be used as a rotary enhancer (at turn initiation both outrigger tips are pointed in the direction of the next turn and this movement is held throughout the shaping phase of the turn) but should only be used as a supplement to the primary rotary power of leg steering.
- Minimal countering movements of the upper body other than the head is always orientated “downhill” (in the direction of the “hub” of the next turn) and never across the hill.
- As rotary movements in the turn develop, the ski and outriggers are steered across the hill, increasing pressure by terrain dictated edging on the inside edge of ski and minimally, both riggers.
- Although the hips and upper body remains centered over the midline of the ski, the center of mass may move slightly to the inside of the turn on steeper terrain (“terrain dictated edging”). A slight amount of banking is acceptable in order to control the edge angle.
- Emphasis is on producing a rounded, deliberate turn shape, and throughout the turn maintaining the tips of both outriggers in close proximity to the tip of the ski (re. there is no “countering movements of the outrigger” or “reaching downhill”)
- The Wedge Turn shows the basic skills of skiing in a slow moving situation, emphasizing the rotary movements created by leg steering with limited edge and pressure movements to maintain constant speed and radius of the turn.
- A desired outcome is to achieve a sense of rhythm, flow, and control from turn to turn, while maintaining a constant speed relative to the shape of the turn.
**Wedge Christie**

- Speed is greater than that of a wedge turn and should be constant throughout the task relative to the shape of the turn.
- The ski and lower body is allowed to turn slightly more than the upper body, resulting in a slightly countered relationship with the ski (i.e., head, shoulders, torso, and hips slightly countered in the direction of the next turn). This increased upper body countering encourages angulated edging movements. However, angulation is minimal as related to the terrain appropriate for this demo.
- Asymmetrical outrigger steering may be used as a rotary enhancer (at turn initiation one outrigger tip is pointed in the direction of the next turn) and “matched” or moved (toward the midline) back to the neutral position prior to or after the fall line of the turn (similar to the “match” of the skis of a standup skier doing a wedge Christie). There is no active “reaching” of the outrigger downhill although the downhill outrigger will be farther away from the ski than in the wedge turn because of the increased counter of the upper body).
- As rotary movements are accomplished, there is a release of the ski’s edge and slight movement of center of mass into the new turn. Edge release is initiated by a minimal upper body extension in the direction of the new turn.
- Edge angle and pressure on the inside edge of the ski, is slightly greater and occurs earlier than in a wedge turn. This results in the riggers becoming quite light and flat, making it easy to symmetrically guide into a parallel relationship with the ski. This "matching" occurs at or after the fall line, coinciding to the Christie phase of the turn. (Similar to what occurs with two skis.)
- Throughout the turn, the skier demonstrates dynamic balance by maintaining a “tall athletic stance” with slightly rounded shoulders and spinal column with flexed knee and ankle.
- Progressive leg steering combined with increased speed and a relatively flat ski produce a round, skidded arc.

**Basic Parallel**

- Speed is greater than that of a wedge Christie and should be constant throughout the task relative to the shape of the turn.
- Nearing the completion of a prior turn the skier’s upper body and hips are slightly flexed and countered in the direction of the next turn. With pressure predominately on the inside edge of the ski, the outside rigger is in an arc away from the midline, pointed toward the “hub” of next turn. This asymmetrical outrigger steering movement (from the outside/downhill outrigger) corresponds with a countered upper body oriented in the direction of the next turn (outrigger, arm, shoulder, torso, and hips all move together as the upper body finishes the old turn in a countered position.)
- Outrigger movements and upper body separation correspond to the turn size (i.e., long radius turns correspond to a 1 and 11 o’clock countering, with 12 o’clock being aligned with the long axis of the ski toward the ski tip and short radius turns require a 3 and 9 o’clock orientation of the upper body and hips at the finish of the prior turn; much as a pole touch for a two track skier).
- As the skier starts extending toward the new turn, a change in pressure dominance begins from the old outside edge to the new inside edge.
- Continuation of the above movements results in a cross over or lateral movement of the center of mass and a flattening of the skis, which combined with the guidance of both ski and rigger toward the fall line. Edging movements are achieved by angulation of the hips and knee with shoulders level to the fall line.
- The inside rigger and ski complement the actions of the dominant inside edge of ski. Progressive leg steering combined with flexion down and inward regulates edging and pressure, which are progressive throughout the turn.
- A progressive increase of edging and pressure in the turn reduces the amount of skid and helps shape the arc of the turn, which should be fairly consistent throughout.
Dynamic Parallel

- There is refinement of all aspects of the basic skills of skiing of open parallel and they are performed at greater speed with more precision. Speed should remain constant throughout the task relative to the shape of the turn.
- Ski is used as a working component in the turn to achieve desired turn shape and type. Ski characteristics such as flex and sidecut are accounted for. Turns are carved, but not railed. Stance is functional for the speed, radius and terrain being utilized.
- At turn initiation, the downhill outrigger is moved farther away from the midline in a “reaching” movement. This “reach” with the outrigger is simultaneous with an active cross-over of the center of mass from the old inside edge to the new edge. Pressure transfer at turn initiation is very deliberate, and commitment of the center of mass toward the new turn is very active. All movements contribute toward carrying the energy from one turn to the next.
- Edge/pressure engagement is taking place before the fall line.
- Intensity, duration, and timing of movements determine the size, shape, and speed of the turn, i.e. short, medium, long, gliding, and braking.
Appendix E: Adaptive Demonstration Equivalencies for 4-Track

Please note: sections in Italics are for skiers unable to create a wedge with their skis.

Gliding Wedge to Braking Wedge
(for skiers capable of creating a wedge with their skis)

- Quiet upper body balanced over the skis. If necessary, the skier may be supported (weight bearing) on the outriggers.
- Skeletally stacked, upright (static) upper body with a slight flex (if possible) of the ankles, knees, hips, and spine.
- Weight equally distributed over both skis.
- Equal, constant, and progressive pressure on both outriggers with the snow.
- Outriggers remain in close proximity to the ski (i.e., shoulder width apart making snow contact between binding toe and tip of ski).
- Creating a wedge through leg steering, pointing toes in and heels out.
- Progressively increasing the size of the wedge, creating a breaking/slowing effect (increasing edge angle and pressure on the skis)

Gliding Wedge to Braking Wedge
(for skiers unable to create a wedge with their skis)

- Quiet upper body balanced over the skis. If necessary, the skier may be supported (weight bearing) on the outriggers. Skis are maintained in a parallel relationship.
- Skeletally stacked, upright (static) upper body with a slight flex (if possible) of the ankles, knees, hips, and spine.
- Weight equally distributed over both skis.
- Equal, constant, and progressive pressure on both outriggers with the snow.
- Outriggers remain in close proximity to the ski (i.e., shoulder width apart making snow contact between binding toe and tip of ski).
- Outriggers create a braking effect as the tail of the outrigger tips are progressively pushed forward into the snow (this movement is created by pushing the hands forward while dropping the shoulders and flexing/“rounding” the spine). This is the braking technique described in the latest edition of the PSIA Adaptive Manual. An alternative braking technique has been developed since the writing of the Adaptive Manual and may be substituted for this demo. See Below:

-OR-

- Outriggers create a braking effect as the outrigger tips are rotated outward creating a “diverging wedge.” Slowing can be increased or decreased by increasing or decreasing the angle of outward rotation and/or by increasing or decreasing the amount of outrigger pressure applied to the snow.
Wedge Turns
(for skiers capable of creating a wedge with their skis)

- Tall stance with a balanced upper body over the skis.
- Maintain a constant speed throughout the turn. Speed control is a result of turn shape rather than wedge size.
- Emphasis is on leg steering generated as low in the body as possible (at turn initiation steering with the legs throughout the shaping phase of the turn).
- Symmetrical outrigger steering may be used as a rotary enhancer (at turn initiation both outrigger tips are pointed in the direction of the next turn and this movement is held throughout the shaping phase of the turn) but should only be used as a supplement to the primary rotary power of leg steering.
- Minimal countering movements of the upper body other than the head is always orientated “downhill” (in the direction of the “hub” of the next turn) and never across the hill.
- As rotary movements in the turn develop, the skis and outriggers are steered across the hill, increasing pressure to the outside ski by terrain dictated edging on the inside edge of the downhill ski and minimally, both riggers.
- Although the hips and upper body remains centered over the skis, the center of mass may move slightly to the inside of the turn on steeper terrain (“terrain dictated edging”). A slight amount of banking is acceptable in order to control the edge angle.
- Emphasis is on producing a rounded, deliberate turn shape, and throughout the turn maintaining the tips of both outriggers in close proximity to the tip of the ski (re. there is no “countering movements of the outrigger” or “reaching downhill”)
- The Wedge Turn shows the basic skills of skiing in a slow moving situation, emphasizing the rotary movements created by leg steering with limited edge and pressure movements to maintain constant speed and radius of the turn.
- A desired outcome is to achieve a sense of rhythm, flow, and control from turn to turn, while maintaining a constant speed relative to the shape of the turn.
**Wedge Turns**  
*(for skiers unable to create a wedge with their skis)*

- Tall stance with a balanced upper body over the skis. Skis are maintained in a parallel relationship.
- Maintain a constant speed throughout the turn. Speed control is a result of turn shape rather than outrigger braking.
- Emphasis is on leg, hip, or torso steering generated as low in the body as possible (at turn initiation steering with the legs or hips throughout the shaping phase of the turn).
- Symmetrical outrigger steering may be used as a rotary enhancer (at turn initiation both outrigger tips are pointed in the direction of the next turn and this movement is held throughout the shaping phase of the turn) but should only be used as a supplement to the primary rotary power of leg, hip, or torso steering.
- Minimal countering movements of the upper body other than the head is always orientated “downhill” (in the direction of the “hub” of the next turn) and never across the hill.
- As rotary movements in the turn develop, the skis and outriggers are steered across the hill, increasing pressure to the outside ski by terrain dictated edging on the inside edge of the downhill ski and minimally, both riggers.
- Although the hips and upper body remains centered over the skis, the center of mass may move slightly to the inside of the turn on steeper terrain (“terrain dictated edging”). A slight amount of banking is acceptable in order to control the edge angle.
- Emphasis is on producing a rounded, deliberate turn shape, and throughout the turn maintaining the tips of both outriggers in close proximity to the tip of the ski (re. there is no “countering movements of the outrigger” or “reaching downhill”).
- The Wedge Turn shows the basic skills of skiing in a slow moving situation, emphasizing the rotary movements created by leg, hip, or torso steering (supplemented as needed by outrigger steering) with limited edge and pressure movements to maintain constant speed and radius of the turn.
- A desired outcome is to achieve a sense of rhythm, flow, and control from turn to turn, while maintaining a constant speed relative to the shape of the turn.


**Wedge Christie**

*(for skiers capable of creating a wedge with their skis)*

- Speed is greater than that of a wedge turn and should be constant throughout the task relative to the shape of the turn.
- Emphasis is on leg steering (at turn initiation steering with the legs throughout the shaping phase of the turn).
- The ski and lower body is allowed to turn slightly more than the upper body, resulting in a slightly countered relationship with the ski (i.e., head, shoulders, torso, and hips slightly countered in the direction of the next turn). This increased upper body countering encourages angulated edging movements. However, angulation is minimal as related to the terrain appropriate for this demo.
- At turn initiation creating a wedge through leg steering subsequently matching the skis into a parallel relationship before or after the fall line.
- As rotary movements are accomplished, there is a release of the ski’s edge and slight movement of center of mass into the new turn. Edge release is initiated by a minimal extension (as physically possible) in the direction of the new turn.
- Edge angle and pressure on the inside edge of the skis, is slightly greater and occurs earlier than in a wedge turn. This results in the riggers becoming quite light and flat, making it easy to symmetrically guide into a parallel relationship with the ski. This "matching" occurs at or after the fall line, coinciding to the Christie phase of the turn. (Similar to what occurs with two skis.)
- Throughout the turn, the skier demonstrates dynamic balance by maintaining a “tall athletic stance” with slightly rounded shoulders and spinal column with flexed knee and ankle.
- Progressive leg steering combined with increased speed and a relatively flat ski produce a round, skidded arc.

**Wedge Christie**

*(for skiers unable to create a wedge with their skis)*

- Speed is greater than that of a wedge Christie and should be constant throughout the task relative to the shape of the turn.
- The ski and lower body is allowed to turn slightly more than the upper body, resulting in a slightly countered relationship with the ski (i.e., head, shoulders, torso, and hips slightly countered in the direction of the next turn). This increased upper body countering encourages angulated edging movements. However, angulation is minimal as related to the terrain appropriate for this demo.
- Asymmetrical outrigger steering may be used as a rotary enhancer (at turn initiation one outrigger tip is pointed in the direction of the next turn) and “matched” or moved (toward the midline) back to the neutral position prior to or after the fall line of the turn (similar to the “match” of the skis of a standup skier doing a classic wedge Christie). There is no active “reaching” of the outrigger downhill although the downhill outrigger will be farther away from the ski than in the wedge turn because of the increased counter of the upper body).
- As rotary movements are accomplished, there is a release of the ski’s edge and slight movement of center of mass into the new turn. Edge release is initiated by a minimal upper body extension in the direction of the new turn.
- Edge angle and pressure on the inside edge of the ski, is slightly greater and occurs earlier than in a wedge turn. This results in the riggers becoming quite light and flat, making it easy to symmetrically guide into a parallel relationship with the ski. This "matching" occurs at or after the fall line, coinciding to the Christie phase of the turn. (Similar to what occurs with two skis.)
- Throughout the turn, the skier demonstrates dynamic balance by maintaining a “tall athletic stance” with slightly rounded shoulders and spinal column with flexed knee and ankle.
- Progressive leg steering (if physically possible) combined with increased speed and a relatively flat ski produce a round, skidded arc.
**Basic Parallel**

- Speed is greater than that of a wedge Christie and should be constant throughout the task relative to the shape of the turn.
- Nearing the completion of a prior turn the skier’s stance is slightly flexed and countered in the direction of the next turn. With pressure distributed between both skis, the outside rigger is in an arc away from the midline, pointed toward the “hub” of next turn. This asymmetrical outrigger steering movement (from the outside/downhill outrigger) is a rotary enhancer to the primary rotary power of leg steering (when physically possible) and corresponds with a countered upper body oriented in the direction of the next turn (outrigger, arm, shoulder, torso, and hips all move together as the upper body finishes the old turn in a countered position.)
- Outrigger movements and upper body separation correspond to the turn size (i.e., long radius turns correspond to a 1 and 11 o’clock countering, with 12 o’clock being aligned with the long axis of the ski to the ski tip and short radius turns require a 3 and 9 o’clock orientation of the upper body and hips at the finish of the prior turn; much as a pole touch for a two track skier) and to the student’s physical ability and movement range.
- As the skier starts extending toward the new turn, a change in pressure dominance begins from the old inside edge of the downhill ski to the new inside edge of the outside ski.
- Continuation of the above movements results in a cross over or lateral movement of the center of mass and a flattening of the skis, which combined with the guidance of both ski and rigger toward the fall line. Edging movements are achieved by angulation of the hips and knee with shoulders level to the fall line relative to the student’s physical ability and movement range.
- The inside rigger and ski complement the actions of the dominant inside edge of the downhill ski. Progressive leg steering (if possible) combined with flexion down and inward regulates edging and pressure, which are progressive through-out the turn.
- A progressive increase of edging and pressure in the turn reduces the amount of skid and helps shape the arc of the turn, which should be fairly consistent throughout.

**Dynamic Parallel**

- There is refinement of all aspects of the basic skills of skiing of open parallel and they are performed at greater speed with more precision. Speed should remain constant throughout the task relative to the shape of the turn.
- Skis are used as a working component in the turn to achieve desired turn shape and type. Ski characteristics such as flex and sidecut are accounted for. Turns are carved, but not railed. Stance is functional for the speed, radius and terrain being utilized.
- At turn initiation, the downhill outrigger is moved farther away from the midline in a “reaching” movement. This “reach” with the outrigger is simultaneous with an active cross-over of the center of mass from the old inside edge to the new edge. Pressure transfer at turn initiation is very deliberate, and commitment of the center of mass toward the new turn is very active. All movements contribute toward carrying the energy from one turn to the next.
- Edge/pressure engagement is taking place before the fall line.
- Intensity, duration, and timing of movements determine the size, shape, and speed of the turn, i.e. short, medium, long, gliding, and braking.