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PSIA-W Cross Country Handbook

Adapted with the generous permission of PSIA Rocky Mountain

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PSIA-W Cross Country Handbook

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Introduction

Preface

The Cross Country and Telemark Handbooks have been prepared to help PSIA-W members understand the process of becoming a certified Nordic instructor, and to answer some of the questions most frequently asked by potential candidates. Most professions measure proficiency with some type of certification. Ski instruction is no exception. As you prepare, you will practice to become a better teacher and a better skier. Study this handbook, the Core Concepts Manual, the Cross Country Technical Manual, Nordic articles in 32 Degrees, and other snow sport publications, to improve your technical understanding of the sport. Bear in mind that because of the many similarities between telemark and alpine skiing, most materials covering the latter will be applicable as well to the former. Train with other instructors, and learn to give and receive feedback. As you read this, your certification process has begun!

The Certification Process

The certification process provided by PSIA-W and the other eight divisions of PSIA serve:

1. The skiing public; by ensuring that they are provided with the most professional instruction possible.
2. The professional and volunteer instructor; by providing training and validation to support the desire for professional advancement.
3. Ski areas, clubs, and educational institutions; by assisting their hiring and promoting functions, and enhancing their training efforts.
4. Government agencies; by providing a certification standard for use in issuing commercial use permits.

Event Registration, fees, and schedules

Go to www.psia-w.org for printable registration forms, most of which include eligibility requirements, fees and refund policies. The new member form lists the benefits of membership. A schedule of events can be found online, as well as in the fall edition of The Edge newsletter. Questions regarding general policies not answered on the website should be directed to the division office. Questions pertaining to Nordic education and certification will be answered by the Nordic Chairman or Chief Examiner. Please note that unlike alpine and snowboard members, it is not necessary for Nordic members to be employed by a ski school. Foreign instructors should contact the chief examiner to discuss issues of reciprocity and exam eligibility.

Exam Philosophy

The core philosophies which the American Teaching System (ATS) is based (student centered, experiential, humanistic, outcome oriented, etc) apply not only to the expectations of our students, but also to exam candidates. Our exam process is oriented toward a successful outcome for each candidate. While the successful completion of an exam provides important validation for the candidate, merely engaging in the process offers great benefits to the participant and stimulates improved instruction.

Each exam is designed to be a fun learning experience as well as an assessment process. Candidates will not only be assessed, they will be taught, coached, and motivated in the areas of skiing, teaching and technical understanding. Feedback will be continuously given throughout the day, and candidates will be scored on their best performances. By the end of the exam, candidates will generally know how they measure up to the standards.

Exam Prep Clinics/Level 1 In-House Training and Certification Program

All Nordic exam candidates must attend a one-day prep clinic. The purpose of the clinic is to familiarize the candidate with the content, procedures and standards of the exam, as well as to review the specific skills required. Prep clinics are usually scheduled three to four weeks before the exam in order to allow time for the candidate to practice and improve in areas of weak performance identified during the clinic. Unless approved

by the Chief Examiner, the prep clinic must be taken in the same season as the exam. This requirement applies to all Level 2 and 3 candidates, and to Level 1 candidates who are not participating in an In-House Program. Level 1 candidates who chose to participate in the In House Training and Certification Program with an approved examiner at their own ski school are exempt from the same year prep clinic requirement. See www.p-sia-w.org for details about the In-House Program.

At the start of the prep clinic, each participant will receive a Certification Checklist booklet which contains areas to be evaluated at the exam. Feedback will be given throughout the day during both prep clinic and exam. Candidates will be responsible for understanding and retaining their feedback and for recording personal skiing comments provided by the clinician/examiner in these booklets. Please note: no written feedback will be provided by the examiner/clinician.

A "Take Home Study Guide Worksheet" (written test) for each level will be found at the end of this document. It is designed to assist candidates in focusing their study efforts on areas of importance, the completed worksheet allows the examiner to evaluate the candidate's comprehension of the technical content of the exam. The completed Worksheet **must be received** by the discipline specific director, identified at the bottom of the worksheet page, at least two weeks prior to the exam. Worksheets submitted by email will be answered with written feedback, and paper submissions will be verbally commented on at the exam.

The Exam

The Levels 1,2, and 3 Cross Country exams are a one day events designed to evaluate the candidate's understanding of three areas of the American Teaching System (ATS). ATS includes:

1. Skiing Model: These skills will be evaluated through a combination of task skiing, demos and free-skiing. Candidates will have many opportunities to ski and may be asked to perform single maneuvers or a series of maneuvers in a variety of terrain situations.
2. The Teaching Model: Each candidate will be given several opportunities to demonstrate their teaching and movement analysis skills. Teaching tasks will simulate either a group lesson or a private lesson. The examiner will evaluate class handling and lesson progression skills. The candidate will be given 10-15 minutes to lead an individual or several members of the exam group through a logical progression designed to improve a given skill. In addition, the candidate will be asked to observe skiers, describe movements, determine cause and effect relationships in terms of the fundamental skills and prescribe exercises or drills for improvement.
3. Technical Knowledge: This part of the exam is based on the written take home Worksheet. Assessment of a candidate's technical knowledge will also be made through individual questions and group discussions. Candidates should be prepared to answer questions from the examiners during the skiing and teaching part of the exam.

Awards

Certificates and pins will be mailed by the office upon validation as follows:

- Bronze PSIA shield for successful completion of Level 1
- Silver PSIA shield for successful completion of the Level 2
- Gold PSIA shield for successful completion Level 3

Acknowledgements

The PSIA-W Cross Country handbooks and Certification Checklists are largely based on the handbook and checklists published by PSIA-RM. Entire sections are identical, and are used with permission. Significant content was previously issued in the PSIA-W handbook authored by Geoff Clarke. Primary credit for the current documents goes to Dale Drennan and Sally Jones. The following PSIA-W advanced educators have contributed ideas, information, and input to these documents: Urmas Franosch, Paul Petersen, Tor Brown, Geoff Clarke, Ben Grasseschi. Thanks to Mark Nadell for the cover photo.

American Teaching System

Adapted from and with the permission of the PSIA - Rocky Mountain Division

A program, which aims to train and assess ski instructors, must address three questions. Who are we going to teach? What are we going to teach? And how are we going to teach? The American Teaching System (ATS) answers each of these questions. First, ATS is centered on who we are going to teach: the skiing public from never-evers to aspiring racers, so ATS pedagogy is centered on student goals, needs, and abilities. ATS gives instructors the People Skills that help us to assess our students in these areas and to empathize with our students mentally and physically as they face new challenges during our lessons. Our understanding of the student and their stated goals, determines our lesson content, which is based on the ATS Skiing Model and the instructor's Technical Skills in applying this model. This technical skiing model, a clearly defined set of fundamental XC mechanics and its applications, will be described in this handbook. Finally, ATS Teaching Skills gives specific guidelines for how we can teach effective lessons. The ATS Teaching Model has several components that will also be reviewed in this handbook. Ultimately the overall emphasis of the ATS is that we teach by partnering with our students to create a safe, fun learning environment.

Thus ATS provides a useful format for any aspiring instructor. Complete coverage of ATS teaching methodology exists elsewhere in PSIA and snow sport literature. The Core Concepts manual, for example, offers a very good discussion of Gardner's multiple intelligence theory, Kolb's learning styles preference theory, and the application of these theories to ski instruction. In addition, in her excellent book entitled *The Open Mind*. Dr. Dawna Markova gives an in depth explanation of the interplay of visual, auditory, and kinesthetic sensory patterns in the 3 states of mental consciousness. For information on the Skiing Model including basic bio-mechanics, please consult the new Cross Country Technical Manual produced by the national PSIA Cross Country Team. (Please see the Reference section for a more complete list of helpful publications.)

The purpose of this handbook is to provide an outline of the essential information necessary for mastery of each level of cross country certification in PSIA-RM. The reader is encouraged to grow by learning as much as possible by consulting additional educational material offered at www.psia-rm.org and www.thesnowpros.org

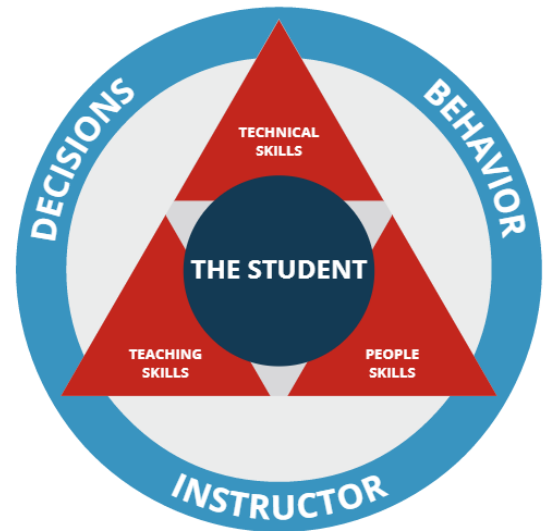
Key points about ATS:

ATS is a teaching and learning method that is **student centered** and experiential in nature.

In ATS **the Student-Instructor Learning Partnership** is the core of experiential learning.

**In ATS instructors blend their
People Skills
Teaching Skills
Technical Skills**

to provide the complete guest experience and positive outcomes or **The Learning Connection.**



The Learning Connection

People Skills

Effective instructors use interpersonal skills to build trust and connection with their guests. Guests learn to trust an instructor who shows genuine interest in each student right from the start of the lesson. While we are showing interest, we are also assessing our students by interviewing them verbally and by carefully observing other nonverbal cues. Our assessment of the guest helps us to make what Peter Kray called in the Summer 2015 issue of *Instructor to Instructor* “empathy based decisions [that] ensure the guest’s needs and desires are central to the experience.” We make these decisions together with the student as we form the Learning Partnership. Below is a list of student behavioral characteristics from Steven Still (1993); these are the “physical/psychological attributes and attitudes that shape [the] personal learning requirements and environment” of the student.

The Student

A. Individual characteristics and backgrounds

- Past experiences with learning
- Age, sex, nationality, athletic ability, body type
- Past experiences with skiing
- Intelligence, common sense
- Physical abilities/disabilities
- Level of kinesthetic awareness
- Psychological factors (positive/negative)
- Range of attention (focus, concentration, and distractibility)
- Perceptual, motor and intellectual attributes
- Participation, knowledge and understanding of other sports

B. Learning preferences

- Sensory preference: visual, auditory or kinesthetic (VAK)
- Learning style preference: innovative, analytical, dynamic learners; active experimenters.

- Gardner's Multiple Intelligence type: Verbal-Linguistic, Logical- Mathematical, Spatial, Bodily-Kines-
thetic, Musical-Rhythmic, Interpersonal, Intrapersonal (Core Concepts,2001)]
- Process versus outcome orientation
- Patience (low, medium, high)
- Amount of information needed (low, medium, high)
- Degree of interpersonal control required in the learning environment
- Feedback (intrinsic or extrinsic) and reinforcement (positive, negative, or equal amounts of each)
needed
- Whole versus progressive part approach
- Expressiveness (ability to give verbal and physical feedback)
- Gifted/disabled
- Group learning/individual learning

C. Motivation

- Intrinsic/extrinsic factors
- Process or outcome
- Future application and transfer
- Personal goals (style, function, perfection, security, social)
- Individual needs (physiological, security, social, esteem and growth)
- Fear of success and/or failure
- Trying hard and moving rapidly versus proceeding cautiously and accurately
- State of readiness

D. Attitudes and values

- Openness, willingness, ability and capacity to change and grow
- Attitude toward learning, teaching, and instructors (Stills, 1993)

The Instructor

The Learning Partnership of ATS encompasses important concepts for every teacher. In this partnership learning happens because the teacher and the student agree on the goals of the lesson and work together toward accomplishing them. The teacher assesses the student in the four main areas outlined above, identifying the students' Motivational, Understanding, and Movement Needs (See Guest Centered Teaching). The instructor then adapts his/her teaching style, the lesson content and the learning environment to what the student asks for and needs. This student-centered learning is in contrast to teacher centered learning where the teacher dictates what must be imparted in a lesson. The merging of Student Behavior and Instructor Behavior into a collaborative effort with a desired outcome is called the Learning Partnership.

Instructor Behavior/Strategies

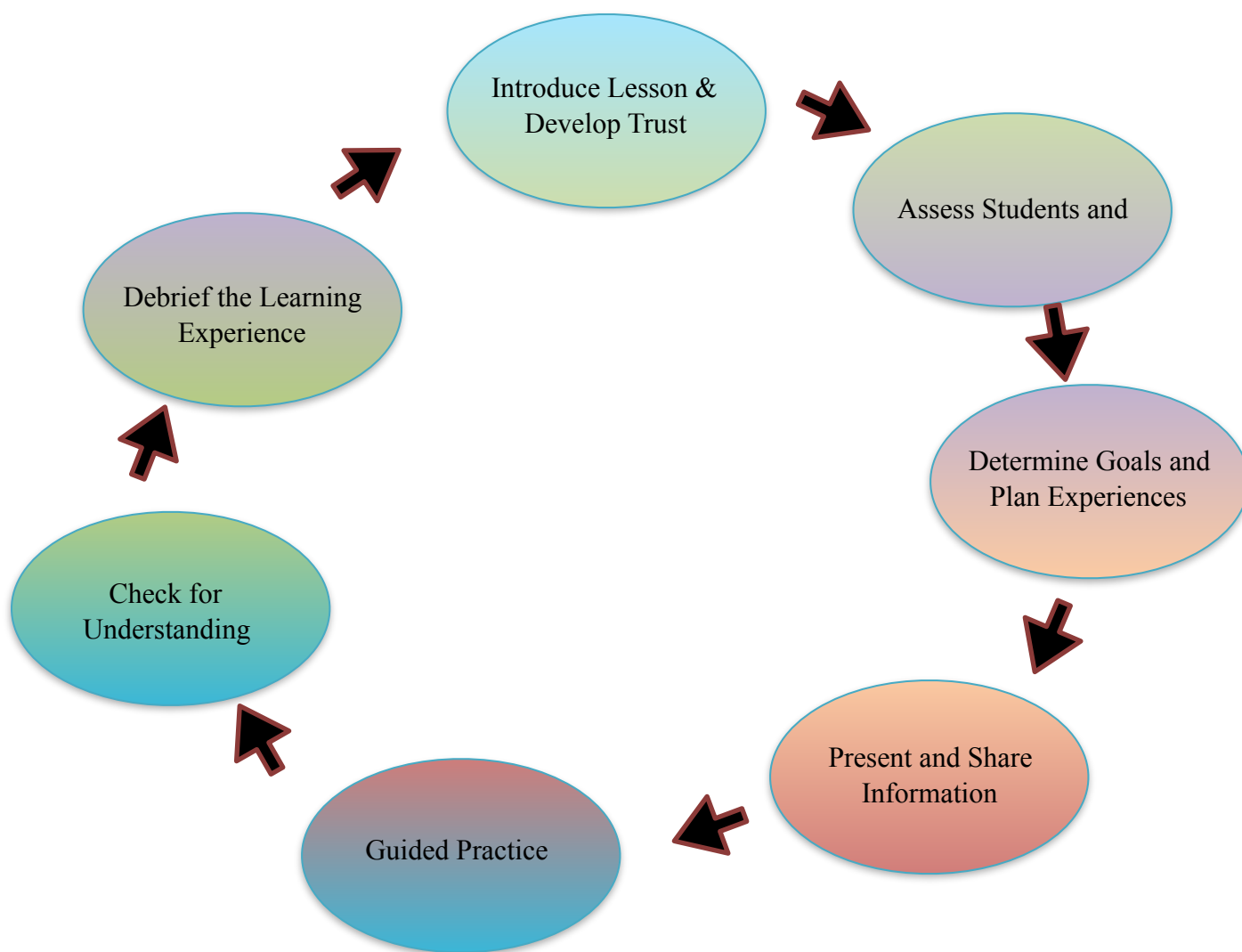
In the Learning Partnership, it is all about the Student; instructors must empathize with student's needs and goals, not only to determine lesson content, but also to adapt an effective method of delivering information. Each instructor brings a full spectrum of behaviors and strategies to the Learning Partnership. These tools enable the instructor to improve student motivation, increase the speed and amount of learning, as well as to facilitate the transfer and retention of information. An important aspect of this is the ability to react to new situations requiring creativity, problem solving and decision making. In addition, every instructor will have a preferred teaching style with which they feel most comfortable. A student, however, may respond best to an alternative style of receiving information. It is, therefore, imperative to learn and utilize each of the primary teaching styles: command, task, reciprocal, guided discovery, and problem solving.

Teaching Style		
Teaching Style	Teacher:	Students:
Command	Explains & demonstrates what the students will do; then evaluates each performance	Perform one at a time
Task	Explains & demonstrates task; Designates practice boundaries; Offers individual feedback	Practice within boundaries
Reciprocal	Explains & demonstrates a task; Designates practice boundaries; Explains roles of doer & observer with a specific focus for the observer; Guides and gives feedback.	Chose roles, ski, regroup, exchange information; Switch roles, ski, regroup, exchange information.
Guided Discovery	Presents a series of tasks that explore a spectrum or range of movement; Poses questions after each set of tasks that lead the student to one conclusion; Does not tell the answer, but guides the discovery process with tasks and questions	Experience movement variations, answer questions about what they experienced and discover the answer.
Problem solving	Poses a problem and sets a framework for the students to work in Accepts all answers that meet the requirements of the problem.	Explore, find alternatives and seek answers on their own

Experienced instructors will mix and match different teaching styles during the course of a lesson according to the learning preference of each student. Successful instructors also employ the ATS Teaching Model as an effective delivery format for a lesson as well as for determining a teaching cycle within the lesson.

The ATS Teaching Cycle

Incorporating the ideas and practices of countless successful instructors, the Teaching Model is described completely in *The American Teaching System: Alpine Skiing*. The following section is another extract from this important book. Please note: The text has been slightly modified in several places so that terminology will concur with the more recent *Core Concepts and Nordic Technical Manual* publication.



How to Use the Model

- The model works in a **cyclical fashion**. This is not a linear progression. The order in which the other elements are used and whether all are used or not is part of the professional decision-making process. For example, you may demonstrate something before you verbally 'Present Information.' You may

'Check for Understanding' before you 'Plan the Lesson Objectives.' But in both cases, these are decisions that an experienced instructor might make.

- After practicing some segment and checking for understanding, you may find yourself going back to demonstrating, presenting information, or possibly even determining goals and planning objectives again.
- An inexperienced instructor, on the other hand, may be more conformable adhering to the order and sequence presented here. The degree of flexibility with which you use the model is dependent upon your level of teaching experience. This gives the model great value as a training tool for all levels of instructors and trainees.
- The model can be **used on macro (overview) or micro (detail) levels**. In other words, the seven actual steps of the model (from "Introducing" through "Summarizing the Learning Segment") can be applied to a single teaching segment or objective, to a half-day class, an all day class, or a three-day lesson package. On the micro level, the cycle can be repeated many times during the course of a lesson.
- How you use the tools and skills presented in 'Instructor Behavior' is a function of, and a response to 'Student Behavior'.
- Always keep in mind the relationship that exists between student behavior and instructor behavior, because they are truly interdependent. The Instructor's ability to effect meaningful change is dependent on his or her ability to accurately assess student's personal learning requirements and then adjust teaching strategies accordingly." (Stills, 1993) Thus **Movement Analysis** is a key part of every lesson.
- The instructor can use any teaching style at any point in the lesson. For example, command may be more appropriate at the beginning of a lesson, but an instructor could chose the reciprocal teaching style later in the lesson in order to help all students give and receive feedback as they practice.

Introducing the Lesson/Learning Segment.

The instructor:

1. Establishes and continually builds rapport and trust (both individual and group)
2. Creates a fun, open, and supportive learning environment
3. Clearly defines the general outcomes and process of the learning segment. As an instructor, you are responsible for the activities listed below.

Assessing the Student.

The instructor continually assesses the individual student's:

- Previous experiences with skiing and other sports
- Ability level, expectations, goals, motivation, limitations, and concerns
- Learning style profile (mix of dominant and non-dominant styles)
- Desired amount of information at any one time (low, medium, high)
- Preferred type of feedback and reinforcement (positive, negative, or both)
- Patience level
- Process or outcome orientation
- Attention span and capacity (level of external and internal distraction)
- Willingness, ability and capacity to change

Determining Goals and Planning Objectives.

The instructor:

- Selects appropriate goals based on individual and group abilities and expectations
- Plans learning objectives relevant to the individual and group goals
- Formulates a logical progression [This may be a linear or “Stepping Stones approach”. See Nordic Technical Manual p. 27]
- Chooses appropriate terrain and snow conditions
- Designs practice periods of correct length
- States general goals for the group and specifies goals for individuals

Presenting and Sharing Information.

The instructor:

- Uses the following techniques to enhance complete learning:
 1. **Instructs/Presents** - explains the technical, mechanical, and tactical elements in a logical and concise manner as rational for the activities
 2. **Shows/demonstrates** - creates clear and meaningful images of specific movements and patterns.
 3. **Develops** -body awareness and feelings associated with different movements
 4. **Encourages Practice** -Trial and error-allows students the opportunity to experiment with the information presented
- Responds to individual student needs by
 1. Properly adjusting the pacing of information to student capacities
 2. Scheduling feedback and reinforcement
 3. Addressing their process or outcome orientation and patience levels
 4. Breaking the lesson into appropriate amounts of practicing, skiing, and information to maintain their attention and motivation

Guiding Practice.

The instructor:

- Sets practice tasks at appropriate levels of difficulty
- Expands the student’s process or outcome orientation to include both
- Provides specific and task-relevant feedback to each student*
- Provides the appropriate reinforcement (positive, negative, or equal part of each)*
- Uses random practice for increased learning and retention
- Guides initial practice and sets the students up for meaningful independent practice

Checking for Understanding.

The instructor:

- Verifies students’ level of physical understanding based on demonstrated performances consistent with the lesson objectives
- Verifies students’ level of cognitive understanding based on verbal responses consistent with the lesson objectives

Summarizing the Learning Segment.

The instructor:

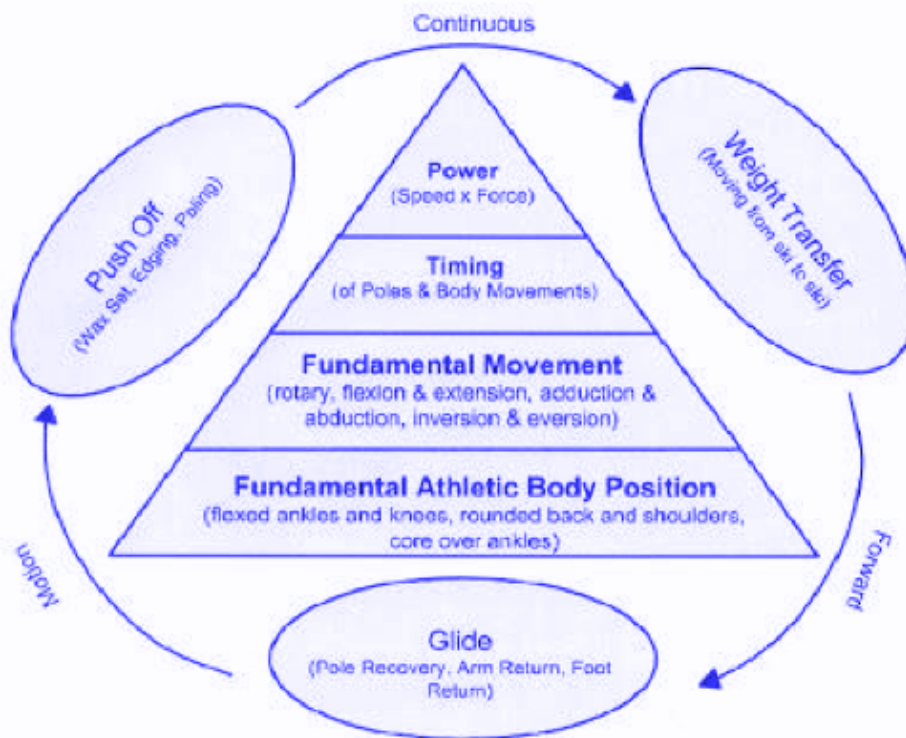
- Reviews the learning segment goals and objectives and communicates the degree of accomplishment to the group and individuals
- Previews the next learning segment and encourages further development
- Establishes independent practice guidelines for each student

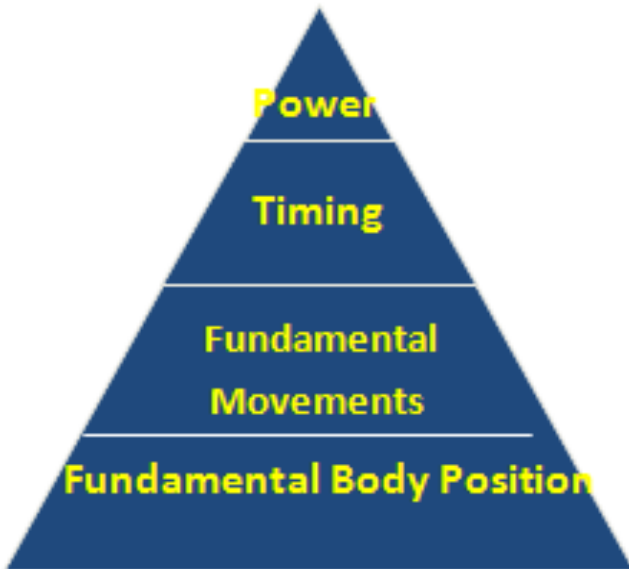
Technical Skills

The PSIA Cross Country Technical Model

The PSIA Cross-Country Technical Model graphically organizes the mechanics and movements essential to cross country skiing. Designed to help instructors understand, teach, and analyze cross country skiing, this skills-based model provides useful tools for teaching cross country skiing efficiently and for movement analysis. With its emphasis on maintaining continuous forward motion, the Cross Country Technical Model is integral to understanding PSIA's cross country teaching philosophy and certification standards.

The graphic below represents the PSIA Cross Country Technical Model. At the center of the model is the Sports Performance Pyramid, a performance model for all sports that highlights the essential elements of body position, movements, timing, and power. A coach, instructor or athlete can learn or teach any sport by breaking down the sport into movements, the coordination of those movements, and applying speed and force to those movements. The three cross country skills of push-off, weight transfer, and glide surround the pyramid. Under each skill are terms in parentheses that are referred to as sub-skills. The circular connection and blending of the three skills embodies the desired outcome of efficient skiing: continuous forward motion.





The Sports Performance Pyramid

This pyramid has been adapted from the previous USSA Technical Model for cross country skiing. Understanding each layer of the pyramid and how the pyramid is used to develop skills and skill blends helps to put the model to best use. The pyramid represents the foundational nature of the model, with each layer building upon the layers below. Therefore, the pyramid provides a natural progression for skill development. Within each skill, start with an effective fundamental body position. Then develop the fundamental movements specific to each skill or a blend of skills from that fundamental body position before adding timing and applying power to those movements.

Time or energy spent developing skills in the upper layers before the foundations, will yield less success, likely frustrating both student and instructor. Building from the bottom up will ensure that skiers have the fundamentals in place and a firm foundation to build upon.

The base of the Sports Performance Pyramid is the body position or fundamental athletic stance.

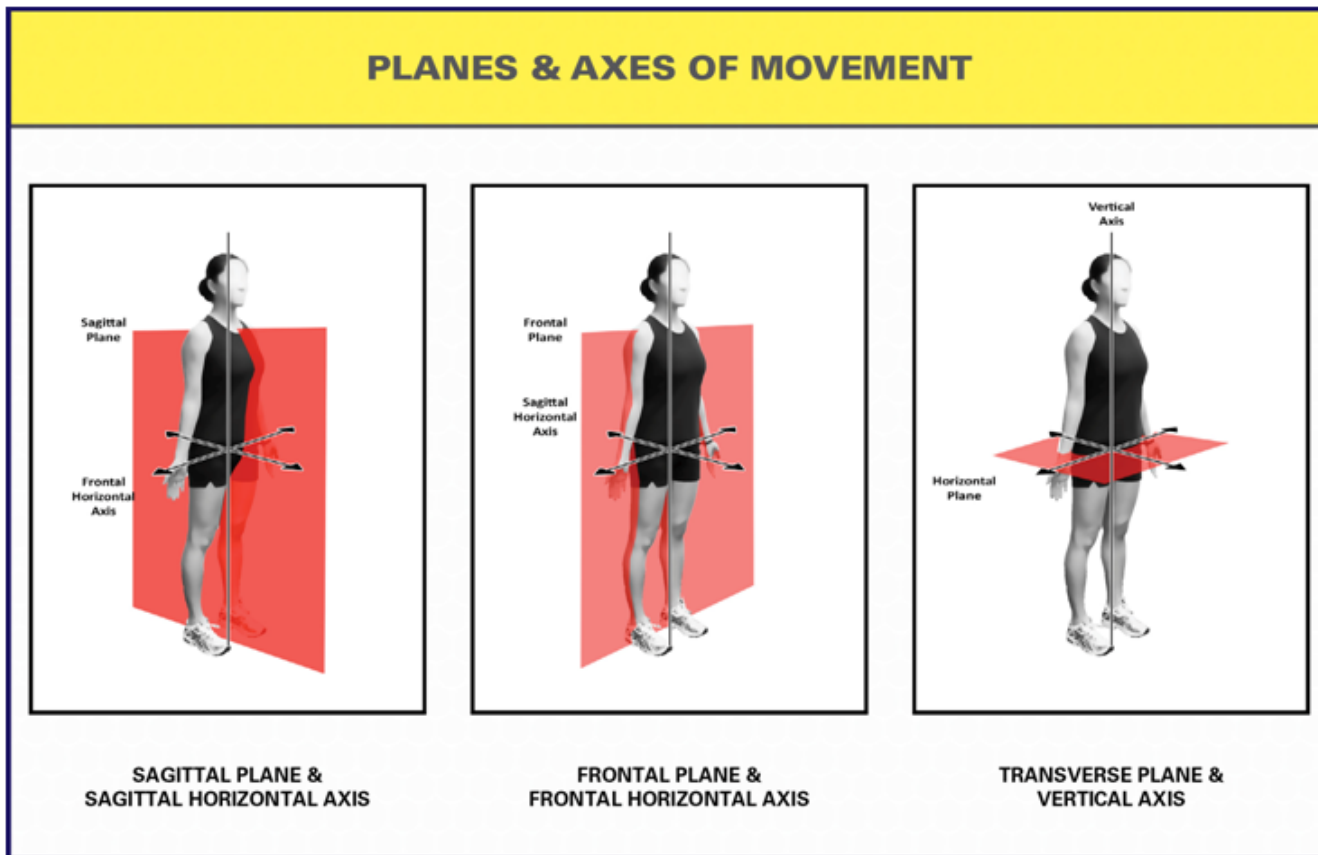
An effective fundamental **athletic stance** is defined by the ability of the athlete to move in any direction at any time. The description of an athletic stance is virtually the same for any locomotor sport:

- The feet are approximately hip width apart to provide a base of support.
- All major joints are slightly flexed.
- Weight and balance are toward the balls of the feet.
- Shoulders and upper back are relaxed.
- The pelvis is neutral, with the lower back neither arched, nor the tailbone tucked.
- Head is aligned with the body and vision is forward.

This stance is characterized by just enough flexion of the ankles, knees, hips, and spine to create a resilient position. Joints should be ready for physical action – hence, neither overly tense nor slack. From a side view, the slant of the lower leg is parallel or nearly parallel to the slant of the upper body, with the overall height of the stance determined by the amount of ankle flex and the matching angles of the knee and hip.

The stance described above is a static snapshot of a neutral or ‘home’ position that allows quick and direct access to the three planes of movement available in any sport. Movements that are specific to one skill or a blend of the skills of cross country skiing will often move the skier away from this stance. The skier’s goal is to return to this reference stance after the need to move out of the stance has been satisfied. Any style or habit that keeps the skier away from this fundamental athletic stance as their neutral or ‘home’ position will have a negative impact on the skier’s ability to move efficiently.

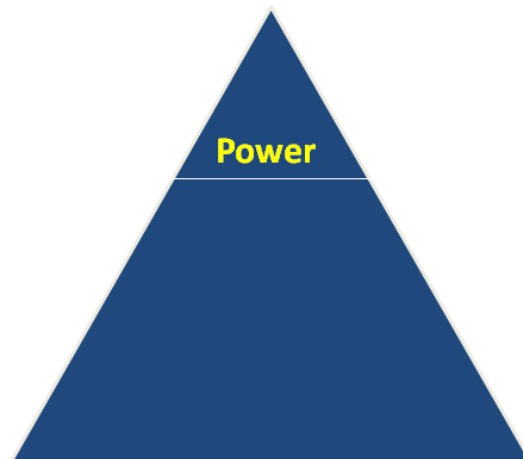
The second layer of the Sports Performance Pyramid is Fundamental Movements. Fundamental movements are present in all athletic activities, and are described with respect to the three planes of movement: sagittal, frontal, and transverse planes. Movements take place in any one of these three directions, or in any combination of the three. (Please see Cross Country Technical Manual.)



<http://www.arthurlilmurray.com/wp-content/uploads/2014/02/Planes-Axes-of-Movement.jpg>

Fundamental movements describe 'opening and closing' of joints and include **flexion and extension** (fore-aft movement along the sagittal plane, such as opening and closing your knee or ankle), **abduction and adduction** (side-to-side movements along the frontal plane such as lifting your leg out and away from the midline of the body or moving your leg in and toward the midline of your body, respectively), **inversion and eversion** (in-out movement along the frontal plane such as turning the ankle so that the sole of the foot faces inward or outward), and **rotation** (movement along the horizontal plane, such as turning the femur in the hip socket), and movements that combine two or more of these options. The fundamental movements are the most basic ways that muscles and joints function.

The third layer of the Sports Performance Pyramid is timing. Timing refers to how the fundamental movements of the body and equipment are coordinated. If the movements are sequential, timing refers to the order in which muscle groups engage; if the movements are simultaneous, timing explains how body parts move at the same time. In all ski maneuvers the body works together to complete the skiing cycle (push off, weight transfer, glide) and continuous forward motion. A clear example might be the simultaneous forward arm and opposite leg swing in diagonal striding.



The fourth layer of the Sports Performance Pyramid

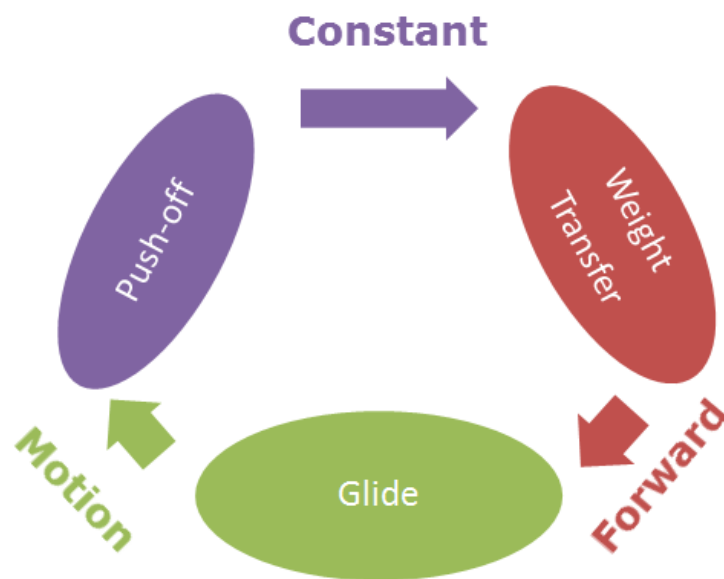
is power. Power is the rate at which energy is used and is defined as velocity times force. Beginning skiers usually apply a fairly constant amount of power to their movements. As they become more skilled they are able to vary the amount of power as they ski and transition from technique to technique, and through terrain changes, in order to ski most efficiently. A common misapplication of power is applying more power in order to overcome inefficient movement mechanics.

Power should contribute propulsion to efficient movement mechanics and timing. Encourage students to master efficient movements and timing first, before increasing power and speed.

Understanding/Applying the Sports Performance Pyramid

The pyramid represents a model that we can use to understand, teach, and analyze a cross country skiing skills. The skier starts with the fundamental athletic body position, performs accurate fundamental movements, and times these movements in correct sequence with respect to one another. When all of this body positioning and timing is correct, power can be added in order to master the skill and ski as efficiently as possible. Although the layers build on each other, they will ultimately blend together to create efficient skiing.

Cross Country Skills



The Cross Country Skills surround the Sports Performance Pyramid to show the interaction of the Pyramid with the Skills of Cross Country Skiing . The Sports Performance Pyramid may be applied to any of the three Cross Country Skills in order to understand, teach and analyze that skill. The three skills (represented in the three ovals) are:

- **Push-off**, referring to using the skis and poles to propel the skis and skier forward.
- **Weight transfer**, referring to transferring weight completely from one ski to the other as the skier moves forward in classic and skate skiing. It can also refer to fore-aft weight transfer during double pole.
- **Glide**, referring to controlling pressure between the ski base and the snow to maximize glide while recovering from and preparing for push-off.

Skills as Phases in the Cycle of Cross Country Skiing

These three terms also signify the three phases in the cycle of skiing, which is indicated by the arrows around the outside of the triangle. There is a phase during each technique where one skill is the predominant skill being used. There may be clearly defined boundaries between phases, as when the glide ends in classic, and

the weight transfer begins, or there may be an overlap between phases, with a more blended transition. Essentially, each phase of the Skiing Cycle represents a part of the skier's "system" of propulsion. In the Push-off Phase, the skier "loads" the ski and the pole with the propulsive forces created by leg flexion and complementary upper body movement. In the Weight Transfer Phase, the skier moves visibly forward and diagonally via active leg extension coupled with pole pushing and transfers body weight to the new gliding ski. Gliding is the phase in which the skier has a brief moment of relaxation balancing on one ski before initiating the cycle again with the other leg. The cycle of these phases produces continuous forward motion, the desired result of efficient skiing!

Sub Skills

Sub skills complement the main skill in the cross country technical model. For instance, under the skill of Push-Off, there are three terms: edging, wax set and poling. These three are considered sub skills. They are of integral importance to the skill of push-off, so they are included in the model and defined as sub skills.

Continuous Forward Motion

Continuous Forward Motion links the three skills together in the PSIA Cross Country Technical Model. Continuous Forward Motion provides a clear and simple organizing principle for assessing student's movements within each skill and the skill blends used to create the specific techniques of skate and classic skiing. If the sub skills the skier uses create efficient, continuous forward motion, then those movements and sub skills are effective. If not, discovering what interrupts forward motion will provide clues as to what skills and what movements need to be developed and refined.

Application

The PSIA Nordic Technical Model is designed not only to help you mid-lesson with analyzing a student's performance and determining a focus for your lesson, but also for planning a lesson or a series of lessons ahead of time. It can also help you off-snow to develop a correct strength-training regimen that develops the muscles for applicable fundamental movements. Using the example above, the students could be encouraged to strengthen their ability to evert and invert their ankles with balance work on bosu balls or to use bands to strengthen leg abduction muscles. The model is intended to be simple to remember, with three main skills, while allowing the skills to be understood in a comprehensive manner and used to design your lesson.

A Closer Look at the Cross Country Skills

Push off

The push-off is a unique cross country skiing skill that requires a blending of flexing and extending movements. These movements, bending and straightening the legs, are what provide the power to move from ski to ski. The more push/extension there is, the more speed/power can be generated. Increasing extension requires increasing flexion (more bend at the ankle, knee, and hip)—the more flexion the better. To maximize this flexion and extension the skier needs to keep a good fundamental body position throughout the push off. This means that the body is stacked over the gliding ski (See figure.) From this position flexion and extension occurs equally from the ankle and hip joints in relation to the knee.



Without flexion and extension, moving from ski-to-ski for weight transfer tends to be a passive, side-wards movement resulting from loss of balance. In diagonal stride, besides triggering an elastic rebound in the muscles, a quick drop also helps plant the ski to attain a good grip (whether wax or pattern base) and provide

a stable platform from which to push-off. In skating, when the ski contacts the snow, during flexion, and for most of the extension, the weight should be on the whole foot, with the final push-off through the heel. Nystad ties it all together when he explains,

One should also here mention timing. The push off needs to happen first. Then as a result of the push off, the weight transfer is initiated. The energy of the push off should be directed so that the power and speed forward along the track is maximized. This might involve a different body stance depending on the incline of a hill etc.(2003)

Push-off

Push-off equals quick leg flexion immediately followed by powerful leg extension

Flexion at the ankle, knee and hip is equal and simultaneous.

The quicker and more complete the flexion, the more powerful the extension/push-off

Complete weight transfer from ski to ski maximizes push-off

The body lean from the ankle and the extension of the leg push the core/torso in the direction of the next ski's glide.

Pushoff Poling



Poling compliments the push-off in cross country skiing and increases forward momentum. In classic and skate skiing there are a variety of poling techniques used in coordinating the push from the poles with the push from the legs. These are described in more detail in the Cross Country Maneuvers section. Poling is adjusted to the skier's speed and to the terrain. In cross country skiing poles are not for balance, but for push!

The tempo and amount of completion of the poling varies with the terrain; uphill terrain or "slower" snow requires faster tempo with less completion of the motion. The skier may only "fall" forward onto the poles and have a short abdominal crunch. When on "faster" snow or going down hill, the tempo is slower and poling motions are complete including not only the fall onto the poles and the abdominal crunch, but also muscle power from the back, shoulders, arms, and hands.

Poling

Poles are used to propel the skier in the direction of the gliding ski(s).

Arm swing is forward and backward from the shoulder joints in a pendulum motion.

Arms are flexed at the elbow.

Downward pressure is applied to the poles using the weight of the upper body and the muscles (in order) of the abs, back, shoulders, and arms.

Upper and lower body movements compliment each other, both pushing at the same time to move the core/torso forward.

Pushoff Edge Control



In order to accomplish Weight Transfer or move the Center of Mass from ski-to-ski, there has to be a stable platform from which to push. In diagonal stride on level ground the platform is created by the quick drop to a flexed position on a flat ski. In skating, progressively edging the ski as the leg is being extended will create a strong push-off that will propel the center of mass in the desired direction of travel.

Edge Control

Flat ski(s) for glide and for the diagonal stride push-off on level ground.

Edged ski(s) for skate push-off and for control on tilted diagonal track and down hills.



Weight Transfer

Weight Transfer is the most important of the Cross Country Skiing skills. With effective Weight Transfer, gliding is effortless. Without effective Weight Transfer, the skier is stuck in a laborious shuffle that taxes the muscles and numbs the brain.

Weight Transfer

- An efficient Push off moves the *Center of Mass* in continuous forward motion from foot to foot.
- Ankle, knee and hip are slightly flexed on landing; extended for push-off.
- The body is relaxed and supported by the skeleton.
- The back and shoulders are rounded.

Glide

According to freedictionary.com "to glide" is "to move in a smooth, effortless manner." So in cross country skiing Glide is the phase in the Cycle when the muscles can relax for a short period of time as the skier moves forward "smoothly and effortlessly, -- effortlessly because

Glide is all about reaping the benefits of an effective push-off and weight transfer. In addition properly waxed skis facilitate gliding by maximizing the glide distance for a given amount of effort exerted in the Push off. Maximum glide requires complete Weight Transfer. Maintaining a skeletal stance also enhances glide. This means letting the skeleton do most of the work to support the body and using muscles only to power forward movements. Thus non-motor muscles (neck, shoulders, torso) remain relaxed.

Glide

- During the *Glide* phase, the skeleton supports the body usually on one leg
- *Glide* permits each muscle to go through a work-relax rotation.
- Sub Skills of *Glide* are pole recovery, arm return and foot return.

Cross Country Maneuvers

Diagonal Stride

Guest Outcome: Experience propulsion on cross country skis.

Terrain and Tactics: Beginners learn the diagonal stride on easy green terrain usually using waxless skis. More proficient skiers, choosing either waxed or waxless skis, utilize the diagonal stride primarily on up-hills or slow snow.

Description:

The difference between a beginner's shuffle and a racer's dynamic movements is in the blending of the fundamental skills. Ideally, the skier will be completely balanced on one ski with all of his/her weight on that ski. When it comes time for the push off the skier should flex ankle, knee, and hip quickly to pre-load and create an effective ski set, then push off producing glide. With the transfer of weight, the center of mass aligns over the new gliding ski. The poling actions coordinate with the movement of the rest of the body. The timing of the poling complements the push-off in maintaining momentum and should be appropriate for the speed, intensity and terrain. In diagonal stride the right arm and left leg work together and the left arm and right leg work together. The arms should swing from the shoulder joint, reaching forward not upward in order to make sure the skier's momentum continues efficiently in a forward direction. On steeper up-hills the stride and poling action will be compressed with a quicker tempo.

- Stride begins with a falling forward from the ankle.
- Effective ski set (also known as wax set on waxed skis) is followed by an active push-off (quick flexion immediately followed by powerful extension.)
- Complete weight transfer follows push-off.
- Center of mass is aligned over the gliding ski.
- Pole timing compliments push-off.

Double Pole/Kick Double Pole

Guest Outcome: Learn alternative classic techniques for flats, slight up-hills, and down-hills.

Terrain and Tactics: Easy green tracks and rolling terrain. Alternating diagonal stride and double pole teaches the student to chose "strokes" according to speed, terrain and preference.

Description:

These techniques are used primarily for maintaining or increasing speed on fast flat tracks or slight up or down-hills. The main focus is to provide an effective application of power to the poles via upper body compression. In double pole the movement begins with a "falling forward" motion from the ankles. The abdominal muscles contract as the skier plants both poles firmly and bends forward from the waist. The arms are slightly bent at the elbow and swing in a pendulum motion from the shoulder joint. During the recovery phase, the center of mass moves ahead of the feet in the direction of travel for optimal glide. For even more speed, a wax set (ski set on pattern based skis), and push-off or "kick" (flexion and extension of one leg) may be added. This technique is referred to as the "kick double pole" or double pole with a kick. To create maximum power the skier slides the kicking foot slightly ahead of the other foot just prior to push-off. Subsequent extension adds propulsion.

- Falling forward from the ankles is key for beginning this movement.
- Downward pressure is applied to both poles simultaneously.
- Abdominal muscles are actively contracted during poling ("the crunch").

- In kick double pole the active push-off increases propulsion.

Step Turns and Skate Turns

Guest Outcome: Learn a simple but effective way to change direction.

Terrain and Tactics: Green to blue groomed down hills with corners, no tracks. Wide-open skating lanes are great for teaching this to beginners.

Description:

A step turn is a simple and effective way for a skier in motion to change direction. From a parallel stance the ski tips are separated in a series of "V" steps. For maximum efficiency the skier moves from edge to edge as he or she steps. At faster speeds the skier's upper body is inclined and slightly rotated over the stepping ski

- Series of V steps, each step being initiated with a lifting of the ski tip
- Skis are stepped from edge to edge.
- As skier proficiency improves, the instructor can increase speed and slope angle.

A skate turn has all the features of a step turn, and in addition utilizes a strong push-off instead of just a step in order to increase speed and momentum.

Skating without poles

Guest Outcome: Produce natural skating movements without the complication of using poles.

Terrain and Tactics: Firm snow (compacted by machine or nature) when speed is too fast for poling; Cones can be set up in a course for students to follow.

Description:

This is the basic ski skating technique. The movements of good stroking on ice skates are applied directly to ski skating without poles. The skier "falls forward" in the direction of the ski to be weighted, which lands slightly ahead of the currently weighted foot. Flexion followed by an explosive extension off the whole foot (the skate-push-off) propels the skier on to the "new" gliding ski. At the beginning of the glide the ski is flat and is then progressively edged throughout the gliding phase.

- Initiated by falling forward in direction of ski to be weighted
- Knee, ankle and hip flex in preparation for the push-off.
- Push-off is from the whole foot, with the finish of the push being off the heel.
- Gliding ski is initially flat and progressively edged. (In some situations the skier may choose to place the gliding ski on the outside edge first, then flatten the ski and finally move to the inside edge as the glide slows down.)
- The skier pushes laterally off the skating foot and extends as far forward as possible. The push-off foot should end up even with the skier's hips rather than behind them.

Diagonal Skate

Guest Outcome: Combine and transfer guest ability to herringbone and diagonal stride to learn a faster way to move uphill.

Terrain and Tactics: Used in high resistance situations (e.g. steep up-hills, slow snow conditions etc.)

Description:

The "cross lateral" poling action allows for a very quick tempo, with the opposite pole and ski landing at the same time. Accurate ski recovery is combined with an aggressive step up the hill. Movement of the center of mass is in the primary direction of travel.

- The skier steps up the hill with center of mass over or ahead of the feet, i.e. flex at the ankles to push knees and hips forward.
- Pole usage is identical to that of the diagonal stride.
- Knee, ankle and leg flex in preparation for the push-off.

Marathon Skate

Guest Outcome: Learn a basic skating stroke and stepping stone for learning the V1 skate

Terrain and Tactics: Groomed snow with a skating lane beside a track.

Description:

This technique can best be described as a strong skate push-off added to an effective double pole movement. The skating foot is angled away from the track and positioned to the side and slightly in front of the glide foot during the move to transfer weight. Although some weight should remain on the in-track ski, the more weight that is transferred to the skating ski, the more power the skate can generate. The skating ski maintains an appropriate angle to the track relative to the speed, intensity and terrain, and is progressively edged during the skate-push-off.

- Glide ski remains in the track or pointing forward if there is no track.
- Partial weight transfer to the skating ski
- Skating ski maintains appropriate angle to the track.
- Skating ski is progressively edged.
- Strong double pole is coordinated with the skate to yield complete weight transfer to the gliding ski.

V1 Skate

Guest Outcome: By combining and transferring the abilities of double poling and skating without poles, the guest can learn an efficient V- skating technique.

Terrain and Tactics: Up-hills on firm snow (compacted by machine or nature).

Description:

Utilizing a quick tempo, the V1 allows for effective application of power to the poles and to the skis. The poles are planted at the same time as the "push-off ski", creating a three point platform. A strong skate and pole push produce a weight transfer to the glide ski. For very steep up-hills the poling tempo is increased and the feet are recovered by actively stepping them up the hill.

- Poles and the skating ski plant and push together from a three-point platform.
- A strong skate and arm push-off is followed by weight transfer to the gliding ski.
- Feet actively step uphill on steep hills.
- Push-off is from the whole foot.
- Once one poling cycle is complete another begins, with about the same amount of time being spent on the push leg as on the glide leg.

V2 and V2 Alternate Skate

Guest Outcome: Learn alternative skating techniques used at higher speeds.

Terrain and Tactics: Firm snow (compacted by machine or nature), on all terrain but steep up-hills.

Description:

These techniques make use of a strong double pole action which starts over the gliding ski, and finishes with a strong skate and pole push to a balanced position on the new gliding ski. With the V2 there is a pole push on each side; with the V2 Alternate, one of the pole actions is left out and replaced by an active swing of the poles. Effective alignment of the body over the gliding ski is crucial to allow time for the recovery of the poles. The power output of the poles combined with the skating movement make these the fastest techniques.

- Balance over gliding ski is essential.
- Strong double pole push is in the direction of the gliding ski.
- With a strong skate and pole push the skier moves to effectively align his/her body over the new gliding ski.
- All movement is forward down the track.

Downhills and Turning

Guest Outcome: Successfully and confidently negotiate down hills and corners.

Terrain and Tactics: Any snow covered terrain with ups and downs.

Description:

There are a broad range of techniques available to provide speed control and direction changes, ranging from the gliding and braking wedge to advanced christie and telemark turns. A candidate should be prepared to demonstrate a variety of these maneuvers. See Telemark Fundamental Maneuvers for complete descriptions of these.

- Gliding and braking wedge
- Half Wedge (one ski in the track and one ski brushing the snow in a half wedge position)
- Wedge Christie
- Parallel turns
- Basic Telemark turns

Hockey Stop

Guest Outcomes: Learn how to stop quickly. Used as an exercise, helps students develop sensations of leg rotation balance, and upper/lower body independence.

Terrain and Tactics: outside of tracks, firm snow (compacted by machine or nature).

Description:

From a straight run in a relaxed parallel stance, rotate both legs simultaneously to a sideslip that is perpendicular to the line of travel. Utilize a quick pivoting movement of the legs and feet underneath a stable upper body. At this point, engage the edges by rolling the feet into the hill and come to a skidded stop. Edges can be engaged crisply for a rapid stop or more progressively for a side slip to a stop.

- Initiation with a slight flexion encourages the simultaneous rotation of both legs.

- With "Cross Country camber" skis, another initiation option is to extend the legs quickly to lighten the skis just before pivoting. This helps facilitate the pivoting of the legs and skis.
- Simultaneous edge change movements from flat skis to engaged edges are executed with feet, ankles, and legs.
- The upper body should remain facing the direction of travel.

THE BEGINNER LESSON

The following is a guideline for teaching a beginner lesson. There is no set order for these skills, tasks and maneuvers, but this will be a valuable starting point when planning your lessons. There is a lot to cover! You should tailor your lesson to the needs of your students and the terrain they will be skiing after the lesson. For example:

- If you have nervous, older or unfit students - go slowly!
- If you teach an area that has limited flat terrain you should put your primary focus on speed control rather than spending too much time perfecting step and glide in the tracks.

INTRODUCTIONS

- Get to know your students. make them feel welcome & comfortable
- Assess their previous experience with levels of activity & gliding
- Select terrain & modify plan according to group & conditions

FAMILIARITY OF EQUIPMENT

- How to put on & take off skis
- How to hold poles
- Explain fish scales or wax for grip
- Athletic Stance
- Step forwards, backwards, sideways, turn in a circle (star turns), lift one leg off the snow and balance, kick turn, hop, jump.
- Falling & getting back up: Scramble to front and kneel on the skis. Push one foot forward and you can stand up easily.

STEP AND GLIDE

- Athletic Stance (safety position) knees & ankles flexed, hands in front.
- Walking on skis on the flat. (one ski only for less confident beginners)
- Slide between each step (try without the poles)
- Weight shift to front ski for more glide
- Try a relaxed short step with glide
- Explore one ski glide, extended gliding (stride, stride, glide)
- Arm swing (throwing cup of water, pulling on a rope) aids momentum
- Rhythm: try different tempos, counting. saying "step glide, step, glide"

Common Problems

- Shuffling, stiff legs, leaning back, no glide: Uncertain of balance, more time needed to become comfortable with glide. Balance & 1 ski drills may help (See Fundamental Skills.)
- Long, heavy stride & or slipping: pushing back; stiff legs; little weight shift. Try shortening step & step forward not back. More ankle flex & quicker tempo for up hills.

POLES

- Arm swing helps momentum (throwing cup of water, pulling on a rope)
- Strap adjustment & relaxed pole grip
- Relaxed -swing from shoulders, pendulum; pole angles back; not too much push.
- Explore double poling

Common Problems

- Same arm same leg: common if thinking about the coordination. Try jogging on skis. Ski up a hill & correct timing should occur naturally.
- Poles angled forwards: afraid of glide & can cause a skier to lean back & fall

- Overworking arms: practice a light push as the arm swings back

UPHILL TECHNIQUES

- Shortening of stride, jogging, push textured base into the snow. -Sink lower through the knees; step forward not back
- More ankle flex, quicker tempo for uphills
- Herringbone - V shape
- Edging
- Poles planted behind the feet
- Diagonal pole timing.
- Sidestep
- Angle of skis to slope

SPEED CONTROL - Full wedge & "in track" (half) wedge

- Survival - safety position (driving the bus)
- Straight run an gentle hill with natural run out
- Brush skis into wedge in static position (Buttering a piece of bread; shave the snow)
- Explore edging (Try no edge; a little edge; too much edge)
- Straight run down gentle hill brushing both skis into wedge full wedge (or 1 ski while in track)
- Explore pressuring for more friction

Common problems

- Falling backwards: review survival position. Bend ankles; hands low & forward.
- Inability to hold wedge position: push out equally with both feet, equally weight & edge both skis
- Correct ski position but little control: review flexing knees & ankles & pressuring, explore edge angles and wedge size

WEDGE TURN

- Explore turning skis in air, on glove or snowball
- Survival position (driving the bus)
- Wedge
- Look in the direction you want to go & steer both skis

Common problems

- Falling backwards: Review survival position. Bent knees & ankles, hands low & forward. - Inability to make or hold wedge: review wedging
- Good wedge shape but no turning: check-& review - edging & turning skills
- Wide wedge shape hinders turn: makes turning harder, explore narrow wedge

THE SKI AREA

- Explain difficulty rating of trails & distances
- Recommend trails to ski after the lesson - Describe benefits of further lessons



Certification

PSIA-WEST

Level 1 Cross Country

Certified Level I members demonstrate a solid foundation of information and training necessary to be an effective ski teacher of beginner/novice skiers. In both classic and skate. The Certified Level I instructor possesses an understanding of basic skiing skills, teaching skills, and professional knowledge. It is not expected that Level I candidates will have in-depth knowledge and experience in each of the areas of competence listed in these Standards. It is expected, however, that candidates will be able to show basic competence and knowledge in all of these areas. In addition, it is expected that candidates will be able to demonstrate a significant level of competency with the skiing and teaching tasks listed specifically for assessment at a Level I event.

Pre-requisites:

A candidate for Level 1 Cross Country certification

- Is a current Registered member in PSIA-W.
- Has attended a Level 1 Cross Country Prep clinic or In-House Program. Prep should be taken the same season as the Exam (unless approved by the chief examiner).

A Level 1 Cross Country candidate is an entry level instructor who teaches primarily novice and beginner lessons. The candidate is responsible for all of the information on the following Level 1 Standards checklist. Candidates will be evaluated on their ability to apply the Cross Country Technical Model to these Level 1 maneuvers.

Level 1 Cross Country Standards Checklist

Equipment:

Because the majority of our students in the West learn on waxless skis, Level 1 tasks and demonstrations for classic technique may be performed on "waxless" skis at the exam. Skating skis will be used for all skating tasks and demonstrations.

Skiing and Demonstrations

Level I certified teachers must be able to ski all green and groomed blue terrain demonstrating consistent balance, coordination and control of speed. Demonstrations must display an "understandable picture" of the technical elements of Beginner/Novice zone skiing. Skiing dynamics are limited by the speeds and terrain appropriate for Beginner/Novice zone skiing and tasks.

A Certified Level 1 Cross Country Track instructor is able to ski and demonstrate good basic body position, correct timing, and a relaxed, and demonstrate a blending of the skiing skills, (Push-off, Weight Transfer, and Glide,) in the following techniques:

- Diagonal Stride, Uphill Stride, Double Pole, Herringbone, Side Step,
- Diagonal Skate, V1 Skate.
- Half Wedge, Wedge, Wedge Turn, Step Turn
- A candidate's "free skiing" will also be assessed using the same criteria.

Skiing Tasks

In addition a level 1 instructor is able to:

- Demonstrate Step – Step – Glide drill showing basic weight transfer and balance.
- Ski a transition of diagonal stride from flat to uphill terrain.
- Ski a transition from diagonal stride to herringbone.

- Show basic movements and timing of: No-pole skate, Marathon Skate, Show the Telemark stance.

Teaching

Level I Certified teachers demonstrate a solid foundation of information, and experience necessary to be an effective teacher of Beginner/Novice zone skiers for both classic and skate. A basic understanding of how to manage the learning environment for different age and gender situations is required.

A Certified Level 1 Cross Country Track instructor is able to:

- Teach the skiing public through the beginner and low intermediate level. (Diagonal Stride, Uphill Stride, Double Pole, V-1 Skate, Diagonal Skate, Herringbone, Side Step, Half Wedge, Wedge, Wedge Turn, Step Turn)
- Provide a safe, positive, friendly environment to enhance the learning experience.
- Manage a class appropriate to the abilities and energies of the students.
- Assist a student's skill acquisition through simple explanations and progressions appropriate to this level.
- Recognize and demonstrate the ability to effectively communicate with different VAK (visual, auditory, kinesthetic) sensory preferences.
- Give informed advice about home ski area such as recommended trails, skier services, further learning opportunities.

Movement Analysis

A Certified Level 1 Cross Country Track instructor is able to:

- Describe the basic movement patterns of beginning skiers in terms of the Cross Country Skills; Push-off, Weight Transfer, and Glide with reference to one of the 4 elements or blocks of the Performance Pyramid (Body Position, Fundamental Movements, Timing, Power)
- Identify and prioritize skill needs for the beginner and low intermediate skier.
- Draw on a "bag of tricks" (exercises, drills etc), which target a skiers needs and assist with skill improvement at this level.

Technical

Professional knowledge requirements for Level I Certified teachers reflect a practical awareness of general terms and concepts, and an ability to use these concepts in basic lesson situations for Beginner/Novice zone students. Decision making and lesson content will most likely follow preplanned options, with consideration for different skill development emphasis.

A Certified Level 1 Cross Country Track instructor is able to:

- Understand the fundamentals of efficient technique, and how this relates to a beginner skier.
- Define and explain the Cross Country Skiing Skills and the XC Skiing Cycle as described in the PSIA-W handbook.
- Understand the American Teaching System (student centered, outcome based, experiential, guest service driven) and know the factors which influence student outcome.
- Identify the 5 different teaching styles, and the benefits and limitations of each when relating to a beginner skier.
- Be able to identify equipment needs for skiers at the beginning level.
- Know the skier responsibility code and the importance of teaching safety.
- Be able to recognize the timing and know when to use the following techniques:
 - Kick double pole, V2 and V2 alternate skate, skate turn
 - Wedge Christie and wedge telemark, parallel and telemark turns.

PSIA-WEST Level 2 Cross Country

The Level II certified member is one who has demonstrated commitment and dedication to the ski teaching profession and to his/her own personal development. Level II members are considered qualified to provide valuable instruction to a majority of ski school guests. A Level II certified instructor demonstrates the ability to relate movements and skill areas to movement outcomes and to apply that knowledge to teaching situations common to Intermediate zone skiers. Level II certified instructors have a global understanding of the ski industry and are able to classify their responsibilities as a part of the resort team.

Pre-requisites:

A Candidate for Level 2 Cross Country

- Is an active member in PSIA-W in good standing.
- Is a certified cross Country Level 1 instructor or a certified Level 3 in a cross discipline i.e. Alpine, Snowboard, Children's or Adaptive.
- Has attended a Level 2 Exam Prep Clinic. Prep should be taken the same season as the Exam (unless approved by the chief examiner).

Candidates for Level 2 Cross Country teach primarily beginner and intermediate lessons. They should be able to demonstrate a working knowledge of the ATS Teaching Model and demonstrate the Skiing Model at an intermediate standard. These instructors should be able to ski most of the terrain regularly skied by the general public. The candidate is responsible for all of the information on the following Level 2 Standards checklist.

Level 2 Cross Country Standards Checklist

Equipment:

At the level 2 exam classic skiing tasks and demonstrations should be performed on waxable skis, unless the examiner determines that snow and weather conditions make waxless skis more appropriate. Skating tasks and demonstrations should be performed on skating skis.

Skiing and Demonstrations

Level II certified teachers have the skills to stride and skate on blue and groomed black terrain with moderate efficiency. Skis grip (classic) or edge (skate) with minimal slip, effecting a timely weight transfer and lengthened glide. Skill application and accuracy may vary with terrain and snow conditions. Demonstrations should illustrate accurate movement patterns and reflect skiing dynamics relative to the speeds and tempos common to Intermediate zone skiers.

A Certified Level 2 Cross Country Track instructor is able to:

- Demonstrate all track skiing techniques with correct timing and improved efficiency
- Diagonal Stride, Uphill Stride, Double Pole, Kick Double Pole, No Pole Skate, V1, V2, V2 Alt.
- Demonstrate techniques at different speeds and transitions between techniques on appropriate terrain
- Demonstrate speed control and more dynamic turning using the following techniques: Wedge, wedge and wedge christie turns, step and skate turns
- A candidate's "free skiing" will also be assessed using the same criteria

Skiing Tasks

In addition, a level 2 instructor is able to ski the following tasks:

- Demonstrate the Step – Step – glide drill showing good weight transfer and balance
- Show good body position and balance in the V1 hop drill.
- Ski diagonal stride, and/ or any of the skating techniques without poles showing correct movements and timing.
- Ski a transition from diagonal stride to herringbone to diagonal stride.
- Ski any technique in slow motion or at a faster pace than normal.
- Show the basics of a Telemark turn.

Teaching

Level II certified teachers demonstrate an understanding of basic learning theory, communication and people skills, and human development. Practical knowledge of these concepts is required for students and teaching situations through Intermediate zone lessons. Level II certified teachers demonstrate the ability to adapt the lesson environment to meet a variety of options for specific audiences (i.e., age, gender).

A Certified Level 2 Cross Country Track instructor is able to:

- Teach all track techniques to beginner and intermediate students.
- Provide a safe, positive, friendly environment to enhance the learning experience.
- Manage a class appropriate to abilities and energies of the students.
- Understand the importance of the learning partnership i.e. determine goals which are mechanically correct and which meet the expectations of the student
- Build skill improvement through simple explanations and progressions appropriate to this level.
- Tailor teaching style to match sensory preferences and learning styles.

Movement Analysis

A Certified Level 2 Cross Country Track instructor is able to:

- Using the XC Technical Model, describe the basic movement patterns any skier through the intermediate level.
- Pick 2 skills/phases. Reference them with 1 of the 4 elements or blocks of the Performance Pyramid to determine cause and effect relationships
- Draw on a "bag of tricks" (exercises, drills etc), which target a skier's needs and assist with skill improvement at this level.

Technical

Professional Knowledge for Level II certified teachers reflects a basic understanding of general terms and concepts applicable through the Intermediate zone. Application of teaching concepts in actual lesson situations should reveal an ability to interpret correctly student behavior and performance, and to deliver technical content through relevant activities and simple language.

A Certified Level 2 Cross Country Track instructor is able to:

- Define and interpret the Cross Country Skiing Skills, The Cross Country Skiing Cycle and apply them for understanding, analyzing, and teaching skiers up to intermediate level.
- Identify skill application and explain skill blending, intensity and skiing characteristics that create balance and propulsion through the intermediate level.
- Describe the Cross Country Maneuvers in terms of Cross Country Technical Model.
- Understand the American Teaching System (student centered, outcome based, experiential, guest service driven) and know the factors which influence student outcomes.

- Identify the 5 different teaching styles and the benefits and limitations of each as they relate to skiers through the intermediate level.
- Identify equipment needs for an intermediate skier.
- Give advise on both skating and classic equipment
- Explain the basics of grip and glide waxing

PSIA-West Level 3 Cross Country

The Certified Level III member is one whose high levels of skill and knowledge allow him or her to make an uncompromised contribution to the customer, the Association, and the ski industry. A Level III Certified member has the ability to assess all variables with regard to student personality traits, goals, abilities, needs, the learning environment, conditions of the day, available terrain, equipment, etc. and to synthesize these parts into a viable lesson plan. A Level III instructor can make adjustments to lesson goals and is able to appropriately adjust or modify lesson content as required by any situation.

Pre-requisites:

A Candidate for Level 3 Cross Country

- Is an active member in PSIA-W in good standing.
- Is a certified cross Country Level 2 instructor
- Has attended a Level 3 Exam Prep Clinic. Prep should be taken the same season as the Exam (unless approved by the chief examiner).

Candidates for Level 3 Cross Country teach all levels of lessons, including coaching recreational racing programs and advanced skill clinics. They exhibit a mastery of the ATS Teaching Model and are able to demonstrate the Skiing Model skillfully and dynamically. These instructors should also be able to demonstrate a high level of personal skiing ability on any terrain normally skied by the general public. The Level 3 candidate is responsible for all of the information on the following Level 3 Standards checklist.

Level 3 Cross Country Standards Checklist

Equipment:

At the level 3 exam classic skiing tasks and demonstrations must be performed on waxable skis. Skating tasks and demonstrations must be performed on skating skis.

Skiing and Demonstrations

Level III certified teachers have the skills to stride and skate on blue and groomed black terrain with optimal efficiency. Skis grip (classic) or edge (skate) with little or no slip, effecting a timely weight transfer and maximum glide. Terrain and snow conditions should have minimal impact on skill application and movement accuracy. Demonstrations should illustrate accurate movement patterns and reflect skiing dynamics relative to the speeds and tempos common to Intermediate zone skiers. A Level III certified teacher has the ability to maintain dynamics and movement accuracy through most conditions, on any terrain on most trail systems.

A Certified Level 3 Cross Country Track instructor is able to:

- Demonstrate all techniques with flow and efficiency in any terrain at any speed.
- Diagonal Stride, Uphill Stride, Double Pole, Kick Double Pole, No- Pole Skate, V1, V2, V2 Alt., Racing tuck.
- Demonstrate all techniques and transitions at all speeds regardless of terrain including high speed transitions, accelerating over the top of a hill, and through turns.
- Demonstrate speed control and dynamic turning using any of the following techniques: Wedge, wedge turn, wedge christie, step, skidded parallel to step turn, and skate turns.

- A candidate's "free skiing" will also be assessed using the same criteria

Skiing Tasks

In addition, a level 3 instructor is able to ski the following tasks:

- Step – Step – glide" drill showing good body positioning
- "Freeze-Snap" drill showing efficient weighting to the ski & forward drive (be able to demonstrate this on and off skis).
- "V2 hop drill" showing good body position and balance
- Ski efficient diagonal stride, kick double pole, V1, V2, and / or V2 alt without poles showing efficient movements and timing
- Ski diagonal stride and/ or V1 down a gradual hill, and /or at slow speed, showing good timing and balance

Teaching

Level III certified teachers must demonstrate an in depth understanding of basic learning theory, communication and people skills, and human development issues. Display a mastery of human development issues for all skiing populations (i.e., age, gender). Application of these concepts must produce a clear and concise delivery of information, and an uncomplicated learning environment through Advanced zone lessons.

A Certified Level 3 Cross Country Track instructor is able to:

- Teach all track techniques to any level of student from beginner through recreational racing.
- Conduct teaching and skiing clinics at your ski area for trainee, level 1 and level 2 instructors.
- Provide a safe, positive, friendly environment to enhance the learning experience.
- Manage a class appropriate to the abilities and energies of the students
- Understand the importance of the learning partnership i.e. determine goals which are mechanically correct and which meet the expectations of the student.
- Build skill improvement through simple explanations and progressions appropriate to any level.
- Tailor teaching style to match learning styles and sensory preferences in groups and with individuals

Movement Analysis

A Certified Level 3 Cross Country Track instructor is able to:

- Describe the basic movement patterns in skiers through advanced level using the XC Technical Model
- Reference 2 elements or blocks of the Performance Pyramid to all 3 phases/skills
- Determine cause and effect relationships between the skills and the Sports Pyramid through the advanced level.
- Prioritize and assist with skill needs through the recreational racing level.
- Draw on a "bag of tricks" (exercises, drills etc), which target a skiers needs and assist with skill improvement at this level.

Technical

Professional Knowledge for Level III certified teachers reflects a strong accurate understanding of skiing terminology and concepts beyond the scope of ski teaching manuals. Related industry sources, ski coaching, and familiarity with various peripheral resources promote well-rounded teaching with the capacity to create exceptional experiences for most students, in most conditions on any terrain at most ski areas.

A Certified Level 3 Cross Country Track instructor is able to:

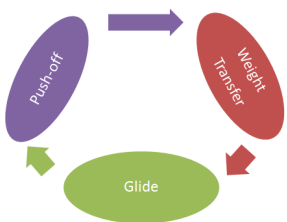
- Understand the fundamentals of efficient technique, and how this relates to a skier at any level
- Understand the American Teaching System (student centered, outcome based, experiential, guest service driven) and know the factors which influence student outcome
- Identify the 5 different teaching styles and the benefits and limitations of each when relating to a skier at any level.
- Give sound advice on equipment for a skier at any level.

- Demonstrate a thorough understanding of ski prep, grip and glide waxing.

What is Ideal Cross Country Skiing?

From the beginning to the end of a ski lesson the instructor is watching the students ski. Students constantly want to know how they look and what they are “doing wrong”. This begs the question, “What does doing right look like?” In order to be a proficient Movement Analyzer we must first know how to recognize and describe the 'IDEAL' so we have something in our minds to compare our student to. We can find descriptions of 'Ideal' skiing in the PSIA National Certification Standards of Cross Country skiing. The National Standards blend the Skiing Cycle and the Sports Performance Pyramid in a grid . In this chart, the standards are described for each XC skill in each phase for three different certification levels for both Classic and Skate skiing.

National Cross Country Certification Skiing Standards Classic and Skate

	Level I – Beginner/ Novice Zone The candidate is able to...	Level II – Intermediate Zone The candidate is able to...	Level III – Advanced Zone The candidate is able to...
Fundamental Athletic Body Position for Push-Off, Weight Transfer and Glide 	Ski with a rounded back and athletic stance.	Ski with a rounded back, hips over the base of support, shin and torso angle matching.	Ski with a rounded back, hips in front of, over and behind the base of support depending on the phase, with shin and torso angle matching.*

*Highlighted to correspond to the example in the text below.

Classic Skiing Standards


<p>Push off</p>	<p>Level I – Beginner/ Novice Zone The candidate is able to..</p>	<p>Level II – Intermediate Zone The candidate is able to...</p>	<p>Level III – Advanced Zone The candidate is able to...</p>
<p>Power</p>	<p>Pole with the arm showing follow through. Demonstrate some flexion and extension in the lower body to set the wax pocket.</p>	<p>Pole with arms and abs showing follow through and pole release. Ski with flexion and extension in the lower and upper body to maintain propulsion.</p>	<p>Pole with arms and abs and lower body showing follow through and pole release. Ski with flexion and extension in upper and lower body to enhance propulsion.</p>
<p>Timing</p>	<p>Engage poles then core muscles.</p>	<p>Engage core muscles and poles simultaneously.</p>	<p>Engage core muscles before poles engage.</p>
<p>Fundamental Movements</p>	<p>Compress the ski with body weight to create grip. Ski with core compression/extension with some control of tipping, hinging, and twisting.</p>	<p>Compress the ski with flexion and extension to create grip. Ski with core compression/extension with more control of tipping, hinging & twisting.</p>	<p>Compress the ski with two cycles of flexion and extension to create grip. Ski with core compression/extension with minimal tipping, hinging & twisting.</p>
<p>Weight Transfer</p>	<p>Level I – Beginner/ Novice Zone The candidate is able to..</p>	<p>Level II – Intermediate Zone The candidate is able to...</p>	<p>Level III – Advanced Zone The candidate is able to...</p>
<p>Power</p>	<p>Ski at a slow speed and one intensity.</p>	<p>Ski with varying speeds and intensities in some techniques.</p>	<p>Demonstrate mastery of applying power at varying speed and intensities on all terrain and techniques.</p>
<p>Timing</p>	<p>Show some coordination of flexing and extending movements in the arms and lower body.</p>	<p>Show coordinated flexing and extending movements in the legs, core and arms.</p>	<p>Show coordinated flexing and extending in all joints during all techniques when skiing all terrain with minimal inefficiency.</p>

Fundamental Movements	Transfer weight from ski to ski using leg extension, okay to land behind the heel of the gliding foot.	Transfer weight as the feet pass using leg and core extension, okay to land beside the gliding foot.	Transfer weight after the feet pass, using leg extension, core and rear arm extension.
Glide	Level I – Beginner/ Novice Zone The candidate is able to..	Level II – Intermediate Zone The candidate is able to...	Level III – Advanced Zone The candidate is able to...
Power	Pendulum (swing) the leg forward at least as far as the heel of the gliding foot.	Pendulum (swing) the leg forward (leg drive) for power as seen by glide on flats and slight uphill.	Pendulum (swing) the leg forward for power as seen by uphill glide.
Timing	Coordinated leg and arm recovery movements.	Coordinated leg, arm and hip recovery movements.	Coordinated leg, arm, and hip recovery movements demonstrating continuous motion.
Fundamental Movements	Balance and glide on one ski using ankle flex on green terrain as indicated by the ski tail off the snow.	Balance and glide on one ski using ankle flex, eversion, inversion, leg flexion and extension some of the time on different terrain and at different speeds as indicated by the ski tail off the snow.	Balance and glide on one ski using ankle flex, eversion and inversion, leg and upper body flexion and extension all the time on any terrain as indicated by the ski tail off the snow.*

*Highlighted to correspond to the example in yellow on page 39.

Skate Skiing Standards

<p style="text-align: center;">Push off</p>	<p>Level I – Beginner/Novice Zone The candidate is able to...</p>	<p>Level II – Intermediate Zone The candidate is able to...</p>	<p>Level III – Advanced Zone The candidate is able to...</p>
<p>Power</p>	<p>Generate power through leg flexion and extension. Pole with the arms.</p>	<p>Generate power through active leg flexion and extension. Pole with the arms and abs showing follow-through and pole release.</p>	<p>Generate power explosive leg flexion and extension. Pole with core compression, arms and lower body showing follow through and pole release.</p>
<p>Timing</p>	<p>Engage poles then core muscles. Demonstrate double poles, V1, diagonal skate.</p>	<p>Engage core muscles and pole simultaneously. Demonstrate timing of and transitions between all techniques.</p>	<p>Engage core muscles before poles engage. Demonstrate timing for all techniques at all speeds and transitions with complete efficiency.</p>
<p>Fundamental Movements</p>	<p>Adequately edge the ski with extension and abduction. Ski with core compression/extension with some control of tipping, hinging, and twisting.</p>	<p>Progressively and adequately edge the ski with extension and abduction. Ski with core compression/extension with more control of tipping, hinging & twisting.</p>	<p>Progressively and adequately edge a constantly gliding ski with extension and abduction. Ski with core compression/extension with minimal tipping, hinging &</p>
<p style="text-align: center;">Weight Transfer</p>	<p>Level I – Beginner/Novice Zone The candidate is able to..</p>	<p>Level II – Intermediate Zone The candidate is able to...</p>	<p>Level III – Advanced Zone The candidate is able to...</p>
<p>Power</p>	<p>Ski at a slow speed and one intensity.</p>	<p>Ski at varying speeds and intensities in all techniques through intermediate terrain.</p>	<p>Ski at varying speeds and intensities in all techniques in all terrain.</p>
<p>Timing</p>	<p>Show coordination of flexing and extending movements in the arms and lower body.</p>	<p>Show coordinated flexing and extending movements in the legs, core and arms.</p>	<p>Show coordinated flexing and extending in all joints during all techniques when skiing all terrain with minimal inefficiency.</p>

Fundamental Move-ments	Weight transfer achieved through leg extension.	Transfer weight through arm and leg extension.	Transfer weight through arm, leg and upper body extension
	Level I – Beginner/Novice Zone	Level II – Intermediate Zone The candidate is able to...	Level III – Advanced Zone The candidate is able to...
Power	Use the projection of the core to accelerate the new glide ski.	Coordinate core projection with arm return to accelerate the new glide ski.	Coordinate the projection of core and hips with arm return to accelerate the new glide ski.
Timing	Coordinated leg and arm recovery movements.	Coordinated leg, arm and hip recovery movements.	Coordinated leg, arm, and hip recovery movements demonstrating continuous motion.
Fundamental Move-ments	Balance and glide on one ski using eversion and inversion on green terrain.	Balance and glide on one ski using eversion, inversion, leg flexion and extension some of the time on different terrain and different speeds.	Balance and glide on one ski using eversion and inversion, leg and upper body flexion and extension all the time, *demonstrating mastery of balance on all terrain, speeds

*Highlighted to correspond to the example in yellow on page 39.

Movement Analysis


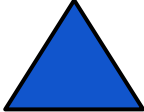
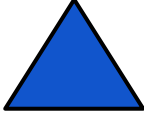
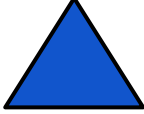
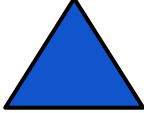
A successful instructor must be skilled in Movement Analysis because students want feedback, and analyzing movement provides the basis for the instructor's ongoing lesson plan. A general, but very effective strategy for movement analysis involves 3 basic steps:

1. Observe and describe
2. Determine of cause and effect relationships
3. Prescribe change.

Let's take an example and go through the MA process. Below is a picture of a Norwegian racer from back in the day. Since it is just one photograph we can determine that he is in the Glide Phase of the Skiing Cycle. In the Movement Analysis Work Sheet below are some observations a modern instructor made:



Movement Analysis Work Sheet

	Push off	Weight Transfer	Glide
Skis 			The tail of the left ski is off snow, the right ski is flat. lots of separation between skis fore and aft. More pressure on the tail of the right ski than the tip
Fundamental Body position 			Hips are behind the gliding heel front ski ankle open and knee is straight bent at hip joint, back straight
Fundamental Movements 			Arm swing (adduction) across body. More flexion in hips than ankle and knee. Upper body rotated more than lower body.
Timing 			Skier is at the end of the glide phase, just before wax is set and pole planted, when the back ski will drive forward
Power 			Relaxation now after push off from left ski and driving forward and across from left arm, setting up for push off of right ski and driving through of left leg and right arm.

Now we are ready to **Determine Cause and Effect relationships**. Body movements cause the skis to respond in certain ways. So the body movements that we observe are the cause and they produce effects in how the skis move. In our example we saw that the skier has the tail of one ski off the ground and that there is quite a bit of ski separation. This indicates that skier has transferred weight to the gliding ski. Looking at the Body Position, we see that the hips are behind the torso, the skier is bent at the hip joint with an arm swing across the body, and the back is straight. Putting these ob-

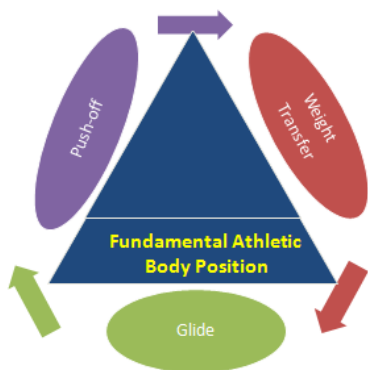
servations together indicates that the skier has achieved weight transfer mostly by a dramatic arm swing and by transferring weight to the heel of the front foot. Comparing with the Ideal of Modern Skiing, the PSIA National Standard for classic skiing at Level III, the descriptor for Body position in Glide Phase is (refer to page 33),

Ski with a rounded back, hips in front of, over and behind the base of support depending on the phase, with shin and torso angle matching.

The descriptor for Fundamental Movements in the Glide phase of classic skiing says,

Balance and glide on one ski using eversion and inversion, leg and upper body flexion and extension all the time

Thus, the Real/ Ideal comparison suggests the **Prescription for Change**: Work on getting the skier to stand up with hips over his base of support and ride the gliding ski with a flexed ankle. That is the goal. Now the instructor must prioritize movements to be changed and develop an exercises which can help meet that goal.



In this example we used the PSIA National Certification Standards of Cross Country skiing as guidelines for identifying effective skiing. We described movements in terms of a specific body part and a specific skill in the Cross Country Skiing Cycle, in this case Glide. The example is offered to show step by step how to do Movement Analysis for entry level instructors. More proficient instructors will be able to address any level of the pyramid with any phase to compose a complete movement analysis picture.

At this point in the lesson, it is time to talk with the student. As we deliver **feedback** we need to:

- Explain why things are happening to the student. Be specific and accurate.
- Compliment movement that is working well.
- Relate recommended changes to either the phase of the turn or the phases of the XC skiing Cycle
- If nothing is wrong, say so!



Cross Country Certification Teaching Standards 2016

• **Level I - Beginner Zone**
The candidate is able to...

▪ **Level II – Inter-mediate Zone**
The candidate is able to...

◆ **Level III - Advanced Zone**
The candidate is able to...

Awareness, Understanding and Knowledge

<ul style="list-style-type: none"> • Understand the coach/student relationship and how to develop trust between them • Recall the components of the learning environment and discuss how to incorporate them into lessons that will create memorable experiences • Identify the components of good teaching • Categorize teaching, skiing, and guest service principles of ATS, relative to Beginner/Novice zone students • Understand student needs of specific groups (i.e., adults, children, women, seniors, beginners, etc.) • List considerations for managing the learning environment for children at different stages of development 	<ul style="list-style-type: none"> ▪ Consider and address safety concerns as students move beyond the Beginner/Novice zone learning environment ▪ Understand and identify the components of the learning process, and relate these concepts to individual learning styles and preferences ▪ Understand the importance of options in lesson plans based upon the mental, emotional, and physical needs (development) of individual students ▪ Illustrate the components of effective feedback in the learning environment ▪ Accurately distinguish “What is happening?” with regard to movement analysis ▪ Formulate lesson plan options for a variety of student needs 	<ul style="list-style-type: none"> ◆ Consider safety concerns as students move beyond the Intermediate zone learning environment ◆ Make specific lesson plan decisions based upon accurate interpretation of student behavior and performance ◆ Adjust the depth and pacing of information and feedback to address the needs, motivation, and interest level of the students ◆ Address a variety of learning styles and utilize various feedback systems to facilitate an experiential learning environment ◆ Identify the elements of multiple intelligence theory and relate these concepts to sensory preferences in communication and information exchange ◆ Describe, in depth, the skier services and activities available at one’s home area as well as within the ski industry ◆ Display a strong ability to answer the “How do I get there?” question regarding movement analysis ◆ Display an in-depth understanding of cause-and-effect relationships relative to skill references and specific movement issues ◆ Create unique lesson plans through a strong understanding of people and ski technique
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<ul style="list-style-type: none"> • Level I - Beginner Zone <i>The candidate is able to...</i> 	<ul style="list-style-type: none"> ▪ Level II - Inter-mediate Zone <i>The candidate is able to...</i> 	<ul style="list-style-type: none"> ◆ Level III - Advanced Zone <i>The candidate is able to...</i>
<i>Application</i>		
<ul style="list-style-type: none"> • Teach the public through the Beginner/Novice zone • Demonstrate an ability to develop a relationship of trust between teacher and students • Identify learning styles and preferences and cite examples of how to use them in a lesson • Recognize the <i>stepping stones</i> concept and other and identify a pathway to learning based on the needs of students specific to the instructors home area • Handle a class based on group energy level, conditions, safety, and lesson content • Predict and meet the needs of specific groups (i.e., children, seniors, men) 	<ul style="list-style-type: none"> ▪ Teach the skiing public through the Intermediate zone ▪ Identify the personality traits and learning preferences of students, and make broad adjustments in lesson plans and delivery to accommodate those traits/preferences ▪ Work with ranges of student performance and personalities within a group; maintain group cohesiveness and a personal, emotional attachment with students and the learning environment ▪ Make technical lesson content decisions based upon both movement analysis observations and student desires and needs; applying the <i>stepping stones</i> concept beyond the Beginner/Novice zone ▪ Demonstrate an effective balance between the amount of information and the amount of practice time; display an effective use of teaching activities ▪ Develop accurate lesson plan options that tailor lesson situations to individual needs and goals 	<ul style="list-style-type: none"> ◆ Teach the skiing public through the Advanced zone ◆ Account for the mental, emotional, social, and physical cues encountered with students in most lesson situations ◆ Creatively utilize the conditions of the day to ensure safety and create unique experiences for students ◆ Make technical lesson content decisions based upon specific movement analysis observations, as well as non-movement factors (mental, emotional, physical) ◆ Demonstrate an ability to encourage students to become responsible for their own learning ◆ Lessons are characterized by a continuously developing lesson plan based on observations and the development and adjustment of guest goals; rather than a preconceived lesson plan based upon initial perceptions

Cross Country Certification Professional Knowledge Standards 2016

Level I - Beginner Zone

The candidate is able to...

Level II – Inter-mediate Zone

The candidate is able to...

Level III - Advanced Zone

The candidate is able to...

<i>Terminology</i>		
<ul style="list-style-type: none"> Define and explain basic skiing terminology as described in the <i>Nordic Technical Manual</i> Define and explain basic terminology as described in the <i>Core Concepts Manual</i> 	<ul style="list-style-type: none"> Define and understand terminology as described in the <i>Nordic Technical Manual</i> Relate skiing terminology to students in simple language; communicating <i>what, why, and how</i> the terms and concepts apply to individual students 	<ul style="list-style-type: none"> Demonstrate a strong understanding of industry wide terminology Display an ability to compare and contrast various types of information regarding skiing and ski teaching from a variety of resources Demonstrate the ability to translate most skiing terminology into layman’s terms
<i>Equipment</i>		
<ul style="list-style-type: none"> Identify equipment needs for skiers through the Beginner/ Novice zone Categorize the basic options and benefits of modern ski designs Identify common equipment safety issues Understand the basic principles of waxing 	<ul style="list-style-type: none"> Describe changing equipment needs as students move through the Beginner/ Novice zone and Intermediate ability zones Understand the options, solutions, and benefits modern designs provide; provide general equipment selection guidance Understand and convey the intended benefits of equipment design Wax for effective grip or glide 	<ul style="list-style-type: none"> Describe changing equipment needs as skiers move through the Intermediate and Advanced ability zones Tailor lesson plans to fit student equipment capabilities, Serve as an industry ambassador, shop liaison, and general authority for equipment questions and advice Wax effectively for all conditions
<i>Skills Concept</i>		
<ul style="list-style-type: none"> Discuss the role of balance relative to the other skill categories and movements especially body position. Identify effective movements and skill development through the Beginner/Novice zone Understand the concept of skill blending, and identify how different skill blends create different outcomes regarding ski performance for a Beginner/Novice zone skier Teach a traditional skill blend for Beginner/ Novice zone skiers Create an activity list for each skill category 	<ul style="list-style-type: none"> Understand the connections between movements and skills, and how changes in movements affect the blending of skills Understand the application of the <i>skills concept</i> to ski performance and of movement patterns to ski-snow interaction Understand how various skill blends are applied to specific Intermediate zone skiing situations relative to terrain, conditions, and desired student outcome Utilize specific activities to target specific skill development 	<ul style="list-style-type: none"> Incorporate appropriate application of the skills concept as a tool to communicate, organize and assist the teaching of movements Incorporate and utilize the controlling elements of skiing movements (duration, intensity, rate, and timing) relative to skill blending Apply skill blending to tactical choices in a variety of conditions

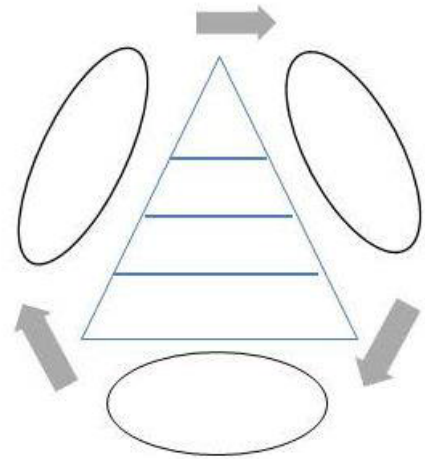
PSIA-West Cross Country Level 1 Take Home Study Guide Worksheet

Early in the season log into the PSIA-AASI Website, Under E-Learning you will find the course “Delivering the Beginner Experience - Cross Country”. Here’s a direct link to help you find the course. <https://lms.thesnow-pros.org/lms-courses/> Take the course and when finished print out the certificate of completion which is turned in with this written exam. The complete course takes about 90 minutes.

The following questions will help you prepare for the technical portion of the exam. Please give clear and concise answers in short essay form. Please return the test to the Director of Cross Country at least **TWO WEEKS** prior to the exam you plan on attending. You must turn in a completed test in order to pass the technical portion of the exam.

1. Label the parts in the diagram below

- a. What is the pyramid called?
- b. The three outer circles represent.
 - i. skills
 - ii. phases
 - iii. cross country skiing cycle
 - iv. all the above
- c. What do the arrows represent?



2. Describe each of the three phases/skills.
3. Describe each of the 4 layers of the pyramid.
4. Describe continuous forward motion, CFM.
5. What are the key elements of the Fundamental Body Position for Cross Country Skiing?
6. How do we modify the diagonal stride when going uphill?
7. Where or when would you use a double pole instead of a diagonal stride?
8. Describe what The American Teaching System “Student Centered” means.
9. One of the pillars of PSIA-AASI’s education system is the Teaching Model. Complete the following description of The teaching Model: _____ + _____ = The Learning Partnership.
10. According to the ATS _____ must be the focus of the lesson
 - a. perfecting technique
 - b. efficient movement
 - c. the goals of the student.
11. Explain visual, auditory and kinesthetic learning styles and why it is important to be able to recognize and teach to all three. Explain how you learn and process information. (See Core Concepts Manual for information about Learning Styles)
12. There are 5 teaching styles. (Command, task, reciprocal, guided discovery, problem solving). Explain each and describe which styles are more effective with beginners?
13. Give an example of progression use in a ski lesson and explain why it is important
14. Who gives way? The skier going uphill or downhill? Should you move left or right if meeting another skier on the trail?
15. Describe the components of a lesson plan. (The Teaching Cycle)

16. What is your analysis of the strengths and weaknesses of your teaching? Name three things that you will practice to improve your teaching.

When finished please send to: Val Licon

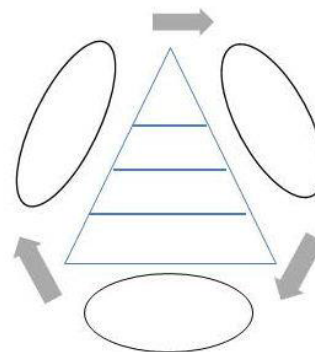
vlicon54@gmail.com

PSIA-West Cross Country Level 2 Take Home Study Guide Worksheet

The following questions will help you prepare for the technical portion of the exam. Please give clear and concise answers in short essay form. Please return the test to the Director of Cross Country at least **TWO WEEKS** prior to the exam you plan on attending. You must turn in a completed test in order to pass the technical portion of the exam.

Technical Knowledge:

1. Label the Parts in the diagram.
 - a. What is the triangle called?
 - b. The outer 3 circles represent
 - i. skills
 - ii. phases
 - iii. cross country skiing cycle
 - iv. all of the above
 - c. What do the arrows represent?
2. Describe each of the 3 phases/skills.
3. What are the four layers of the Pyramid?
4. Describe Continuous Forward Motion.
5. Name and explain each of the fundamental movements from the technical model.
6. What are the key elements of the Fundamental Body Position for cross country skiing?
7. What is the difference between the "real" and "ideal" description of a skier?
8. In your opinion, what distinguishes the skiing skills of a Level 2 XC instructor from those of a Level 1 XC instructor?
9. Using the "Skills for Cross Country Skiing", outlined in The Nordic Technical Manual (ski to ski balance, flexion & extension, poling, relaxation, rhythm, edge control) analyze of the strengths and weaknesses of your own classic skiing?
10. There are 6 fundamental skating maneuvers. Explain where and why each would be used.
11. What cues can be used to determine if a skier is achieving one-ski balance while in motion?
12. List some exercises to improve one ski balance in diagonal stride and in skating.
13. List some exercises to improve rhythm in diagonal stride and kick double pole.
14. Wedge turns, step turns, skate turns and parallel turns are all downhill techniques on cross country skis. Where would you use each of these turns and why?
15. Describe the differences between skating, classic, touring and telemark skis.
16. Describe the functions of grip wax and glide wax.
17. Explain and give an example of each of the following:
 - a. Skill progression
 - b. Terrain progression
 - c. Speed progression
 - d. Snow condition progression
18. Give a skill progression for introducing a V 1 skate to a beginning skating student.
19. Give a skill progression for introducing a kick double pole to a student who can diagonal stride.
20. Name three things that you will practice to improve your skiing.
21. Name three things that you will practice to improve your teaching.



When finished please send to: Val Licon
vlicon54@gmail.com



PSIA-West Cross Country Level 3 Take Home Study Guide Worksheet

The following questions will help you prepare for the technical portion of the exam. Please give clear and concise answers in short essay form. Please return the test to the Director Cross Country at least **TWO WEEKS** prior to the exam you plan on attending. You must turn in a completed test in order to pass the technical portion of the exam.

1. In your opinion what distinguishes the Level 3 XC instructor from the Level 2 XC instructor?
2. Using the "Skills for Cross Country Skiing", outlined in The Nordic Technical Manual (Push -off, Weight Transfer, and Glidel) analyze of the strengths and weaknesses of your own cross country skiing?
3. Why is practicing kick-double pole without poles useful for improving diagonal stride?
4. What are some ways to improve the relaxation skill in cross country skiing movements?
5. You have a regular client from Reno who is in good physical condition from jogging 3 to 4 times a week. He is interested in participating in a 15K citizen race, but is only able to ski on weekends. Briefly outline a one-month training program for this person. Be sure to consider intensity of training, cross training alternatives and diet in your answer.
6. Describe the external forces in a turn. What type of movements can we use to counteract or work with these forces?
7. Which teaching styles seem to work best when teaching the more advanced levels of Nordic skiing? Why?
8. How would you help improve the following common problems:
 - a. Blocked hips
 - b. Hips sitting back
 - c. Poor balance
 - d. No crunch in upper body movements
 - e. V2 alternate timing more like V1
 - f. Wants to ski fast but always wedges on downhill corners
9. Why are demonstrations so important and why should they be adjusted for different levels of lessons?
10. Teaching a beginner group lesson is very different from working with advanced skiers. Explain how you would change your style and outline your lesson content for working with a large group of first time students.
11. What factors should be considered when purchasing high performance cross country ski equipment?
12. Name three things that you will practice to improve your skiing.
13. Name three things that you will practice to improve your teaching.

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Appendix #1

What is the difference between a movement and a skill?

At first glance these terms appear to be synonymous; however, as we study the meaning of these words and their application to snow sports, we will sharpen our understanding of our own skiing and that of our clients. First some definitions:

- **Skill:** dexterity or coordination especially in the execution of learned physical tasks; a learned power of doing something competently: a developed aptitude or **capacity**.
- **Movement:** the act or process of moving; especially: **change of place, position or posture** (Webster, 1996).

When the ATM method developed in the 1970's, Horst Abraham identified the 4 Basic Skills of Alpine Skiing as Balance, Edge, Pressure, and Rotary. (Abraham, 1977) Using these skills, ski instructors had the tools to analyze and make conclusions about beginner through expert skiers. We saw that the skill of edging in our beginning student was very weak or undeveloped in comparison to the expert's ability. So we began to tell our student to "edge" more. But what does that mean? How do we "edge" a ski? In order to explain this to a student, we had to break the skill down into a set of movements in this case eversion and inversion of the foot. Movements are what the student understands. Explaining and demonstrating movements shows our students what they need to **do**.

A definition of skill modified for application in snow sports is: "movement sequences or blends related to a single task."(Levine, 2004) For a cross country skier to have a certain skill such as Push off, he/she must perform certain a set of Fundamental Movements i.e. flexing and extending the knee joint and plantar flexion/dorsiflexion of the ankle. Carol Levine, who revised the 1999 revision of the Vail/Beaver Creek Alpine Instructor Handbook, explains the importance of understanding the difference between a skill and a movement in terms of teaching and student outcomes:

- **Contemporary teaching:** We teach through movements because of what we know about building a learning environment: how people learn and teach motor skills. Learners can feel, see and do movements. Most people can understand and relate to the simplicity of moving their bodies. We organize the myriad of movements into Movement Pools and Movement Blends.
- **Assess skiing through skill proficiency:** Identifying the Cross Country Skills doesn't tell us how to move, or what parts of the body to move. However, the Skills do define the **outcomes** of movements. Another way of looking at it, is that movements are subsets of skills. They provide a reference for diagnosing a skier's ability and designing action plans for change and improvement. (Levine, 2004).

Thus, the term Skill refers to the ability to execute a task. The term Movement explains what the body is supposed to do. The Cross Country Skiing Skills help us to assess student needs and plan student outcomes. The Movements help us to know what to teach them.

Skiing Skills and Movements Summary

A Movement = a change of place, position or posture of the body.

A Skill = the outcome of performing a set of specific movements.

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