

Canadian Ski Instructors' Alliance

Skiing and Teaching Methods

PREFACE / CODE OF ETHICS

PREFACE

The C.S.I.A. certification program is made up of several components from the instructing discipline as well as from the coaching discipline. This manual is one of the components meant to be used on C.S.I.A. instructor certification courses. It also provides interesting reading and background information for any avid skier and student of technique.

Ski instruction has matured into a full-fledged part of the ski industry. Ski instructors of today must be more than accomplished skiers. They are viewed as ambassadors of the ski resort and skiing generally. A successful ski instructor is versed in learning styles and a variety of teaching methods to satisfy the demands of all types of clients. Ski instructors also receive training in guest service and customer relations to prepare for a career serving ski resorts and their clients. A well-trained ski pro is a valuable asset to any ski resort.

This manual is reviewed and updated to reflect changes as they occur in skiing and teaching. Its purpose is to serve as a resource and reference in all things relevant to ski teaching. The information on these pages is the result of years of ski teaching, valuable lessons learned from other ski nations, as well as countless hours of discussion and experimentation among experienced ski teachers.

It is the hope of the Steering Committee that in the future this manual will continue to serve as a useful resource that professional instructors can refer to.

MISSION STATEMENT

For the benefit of its members and partners, the CSIA provides Education and Leadership that contribute to a vibrant Mountain Experience for the skiing public.

THE C.S.I.A. CODE OF ETHICS

The C.S.I.A. Code of Ethics has been developed to help members achieve a level of personal conduct consistent with the position and profession of Alpine Ski Instructor.

The following Code of Ethics is organized around four ethical principles:

Respect for participants

This principle challenges members to act in a manner respectful of the dignity of all participants in the sport.

Responsible Teaching

This principle carries basic ethical expectations that the activities of members will benefit all participants and will do no harm.

Integrity in Relationships

This principle means that members are expected to be honest, sincere, and honourable in their relationships with others.

Honouring Sport

This principle challenges members to recognize, act on and promote the value of sport for individuals and other partners in the sport.

Each main principle is followed by an explanation of a key word that is supportive of the main principle. The Board of Directors shall take appropriate disciplinary action should any breach of the Articles of the Code occur.

RESPECT FOR PARTICIPANTS

1. Respect

- Treat all participants in sport with respect at all times.
- Provide feedback to participants in a caring manner that is sensitive to their needs.
- Refrain from engaging publicly in demeaning descriptions of others in sport (e.g. statements, conversations, jokes, presentations, and media reports).

2. Rights

- Respect people as autonomous individuals and refrain from intervening inappropriately in personal affairs that are outside the generally accepted jurisdiction of a ski instructor.

3. Equity

- Treat all participants equitably within the context of the sport regardless of gender, race, place of origin, athletic potential. Colour, religion, political beliefs, socio-economic status, sexual orientation, or any other status.

4. Empowerment

- Encourage and facilitate participants' abilities to be responsible for their own behaviour, performance and decisions.

5. Confidentiality

- Exercise discretion in recording and communicating information so that information is not interpreted or used to the detriment of others.

RESPONSIBLE TEACHING

6. Professional training

- Be responsible for achieving and maintaining a high personal level of professional competence through appropriate training.
- Keep themselves up to date with relevant information through personal learning discussions, workshops, courses, conferences, etc. to ensure their services will benefit others.

7. Self knowledge

- Evaluate how their own experience, attitudes, beliefs, values, and stresses influence their actions as ski instructors and integrate this awareness into all efforts to benefit others.

8. Teaching limits and safety

- Take the limits of their knowledge and capacity into account in their teaching practice. In particular, members must not assume responsibilities for which they are insufficiently prepared.
- Refrain from working in unsafe or inappropriate situations that significantly compromise the quality of their services and the health and safety of participants.

9. Complete effort

- Ensure that every reasonable effort has been applied to help the participants reach their potential.

10. Sexual relationships

- Be acutely aware of power in teaching relationships, and therefore avoid sexual intimacy with participants. The principle of zero tolerance should be exercised where minors are involved.
- Abstain from and refuse to tolerate in others all forms of harassment, including sexual harassment. Sexual harassment includes either or both of the following:

a) The use of power or authority in an attempt to coerce another person to engage in or tolerate sexual activity. Such uses include explicit or implicit threats of reprisals for noncompliance or promises or reward for compliance.

b) engaging in deliberate or repeated unsolicited sexually oriented comments, anecdotes, gestures, or touching that:

- i. are offensive and unwelcome.
- ii. create an offensive, hostile, or intimidating environment.
- iii. can be expected to be harmful to the recipient.

11. Extended responsibility

- Recognize and address harmful personal practices of others in the sport, e.g., drug and alcohol use/addiction, physical and mental abuse, and misuse of power.

INTEGRITY IN RELATIONSHIPS

12. Honesty

- Accurately represent their qualifications, experience, competence, and affiliations in spoken and written communication, being careful not to use descriptions or information that could be misinterpreted.

13. Conflict of interest

- Declare conflicts of interest when they arise and seek to manage them in a manner that respects the best interests of all those involved.

14. Equipment

- Refrain from sponsoring or promoting any equipment that has not been personally tested and proved to be of high quality. Supporting commercial enterprises for monetary gain rather than from a sense of conviction misrepresents the equipment and jeopardizes the integrity of the organization as a whole.

15. Financial

- Members must meet professional financial obligations promptly and conduct all their business dealing in a manner befitting the standards of the organization.

HONOURING SPORT

16. Positive role model

- Maintain the highest standard of personal conduct and project a favourable image of skiing and of ski teaching to participants and the public in general.

17. Responsibility to industry partners

- Promote cooperation with resorts, ski schools, the skiing public, and other groups that participate in and promote skiing.

18. Respect for other members

- Respect the good efforts of other members in the field. Refrain from vilifying the actions of other colleagues in public or private.

19. Resort respect

- In a resort, privileges are often accorded, and under no circumstances should these be taken as a right nor be abused so as to cause embarrassment to any instructor, director, or operator.

RECOMMENDED PROCESS AND PROCEDURE

In cases where a violation of the C.S.I.A. Code of Ethics is suspected, the following process and procedure is recommended.

1. Students or responsible associates may contact the C.S.I.A. directly to seek advice if they are unsure of what to do.
2. Make every possible effort to deal with and resolve a suspected Code of Ethics violation locally and/or regionally before the involvement of a national body (C.S.I.A.) is requested.
3. Document, in writing, the facts. No action should be considered on the basis of hearsay, innuendo or undocumented information.
4. Submit complaints to the C.S.I.A. in writing to:
C.S.I.A. Disciplinary Committee, Canadian Ski Instructors' Alliance, 774, Décarie Blvd.,
Suite 310, Ville St. Laurent, Quebec, H4L 5H7
5. The Disciplinary Sub-Committee of the C.S.I.A. Board of Directors shall consider cases of suspected breach of the C.S.I.A. Code of Ethics. This committee shall be composed of the past president of the C.S.I.A. board, one other C.S.I.A. board member chosen by the C.S.I.A. President (not including the C.S.I.A. President) and one C.S.I.A. member at large chosen by the C.S.I.A. President.
6. The Disciplinary Committee shall have 30 days from the time of receipt of the written complaint to review the case. The review process may include written reports, telephone discussion or personal interviews, etc. to confirm the facts. The committee reserves the right to return complaints to the sender for lack of documented fact prior to the starting of a formal review.
7. The decision of the Disciplinary Committee shall be communicated in writing to the instructor in question and to the party having lodged the complaint immediately following the review.
8. Penalties may range from a written recommendation to the member suggesting behavioural change to the cancellation of C.S.I.A. membership in the most extreme cases. Penalties will depend on the nature and degree of the infraction. This does not exclude in any way compliance with relevant legal requirements.
9. Appeal of the Disciplinary Committee decision may be made to the President of the C.S.I.A. The appeal must be received within 3 days of notification of the decision of the Disciplinary Committee. The C.S.I.A. Board of Directors shall review the appeal. The decision of the C.S.I.A. Board of Directors shall be final.

CSIA'S STAFF, CONTRACTORS, AND COURSE CONDUCTORS' CODE OF CONDUCT

As CSIA's staff, contractors, or course conductors, the following CSIA Code of Conduct shall apply.

The individual shall:

- 1- Support key personnel and systems of partner organizations in a positive and professional manner at all times; while on course, and working in the field.
- 2- Provide the most up-to-date instruction and coaching possible.
- 3- Make every effort to attend professional development sessions annually, to improve personal abilities and performance.
- 4- Align with the goals and objectives of the CSIA, as they service the membership at large.
- 5- Avoid discrediting specific ski equipment, manufacturers, sponsors, suppliers, and/or other Industry partners.
- 6- Exhibit exemplary professional behavior at ski areas. Courtesies are often accorded at ski areas that should be considered a privilege and not a right.
- 7- Approach problems and issues (technical and non technical), in a professional and respectful manner, seeking solutions that support due process (consistent with the alignment resolution mechanism).

Responsibility

If there is disagreement or misalignment on issues, it is the responsibility of the individual staff, contractor, or course conductor, to seek alignment with the objectives, goals, and directives of the CSIA. Please, be advised that the CSIA Board will take necessary disciplinary action, should any material breach of the Code occur.

Chapter 1: THE C.S.I.A.

THE C.S.I.A.

The Canadian Ski Instructors' Alliance was founded in 1938 and incorporated in 1949. It is the professional ski teaching body in Canada with Head Office located in Montreal, Que. The aim of the C.S.I.A. is to train and certify well qualified instructors to serve the Canadian skiing public. The six members of the National Board of Directors conduct the affairs and business of the C.S.I.A. Canada has six (6) C.S.I.A. regions; B.C., Alberta, Central, Ontario, Quebec, and Maritimes — each represented on the Board. Regional affairs and member services are addressed through Regional Committees. In addition to the administrative committees, there are several special interest committees to assist in the operation of the C.S.I.A. Briefly, they are:

1. National Steering Committee : A small group of members elected by their peers in four regions (B.C., Alberta / Central, Ontario, Quebec / Atlantic) and CSIA operations staff make up the Steering Committee. The purpose of the Steering Committee is to make decisions and final recommendations regarding course content, manual content, and technical doctrine — and to

make those recommendations to the Board of Directors for approval. Such things as the Demonstration Team also fall under the jurisdiction of the Steering Committee.

2. Regional committees: Serving regional needs through member newsletters, regional events, and Level 1 courses.

3. International Committee: Fostering and maintaining a relationship with other ski nations.

People who wish to become members of the C.S.I.A. must attend and pass one of the certification courses that are held at various locations across Canada each winter. Upon becoming a member, each person can receive the latest information on technique and teaching methods via regular bulletins and clinics.

There are four certification levels, Level 1 being an introductory course and Levels 2, 3, and 4 being full courses. Each level is a little more demanding, with Level IV representing the highest ski instructor certification in Canada.

Level I courses are administered by the Regional Committees under the guidelines set down by the National Steering Committee. All other courses are administered by Head Office.

ROLES AND RESPONSIBILITIES

When defining the role of a ski professional it is important to consider all aspects of the profession. There are many important attributes common to all successful instructors, especially the human concerns of the job.

- Every instructor should recognize that people need to be noticed, praised and encouraged. People also need to feel they got their money's worth, to feel they are competent, to feel accomplishment, and to feel special.
- As a ski professional you will encounter situations where your students become frustrated. You must learn how to avoid these situations as often as possible, and when you cannot avoid them, how to deal with them. Experience, training, and genuine concern for your students will help you meet these challenges. All ski instructors know that learning is enhanced when the student is relaxed and feels progress is being made.
- You will be considered a representative of the ski resort where you work and an ambassador of the sport of skiing. Your ability to interact with other ski area staff and resort clientele is important to your success.

From the above, it is clear that the job of a ski professional is also a challenge of communication and human relation skills. Developing your people skills will reward you many times in your profession.

RISK MANAGEMENT

Even the most responsible instructor can have a mishap during the lesson. Every instructor should be aware that although injuries in ski school classes are extremely rare, they do occur, and there are some actions the professional instructor should take.

The policy of your ski school and ski area supersedes this guideline:

1- Report any and all injuries to yourself or members of your class immediately and in the proper manner.

a) Take care of the injured party. **DO NOT MOVE** an injured person, unless there is a high risk of further injury or death, in which case instructors must first protect themselves and then remove the patient from further danger, regardless of the injuries.

- Keep injured party warm.
- Contact Ski Patrol immediately by sending two of the stronger skiers in your group to the bottom of the closest lift. Be sure they know how to get to that lift and that they have an adequate description of the location of the accident.
- If it will take a long time for the Ski Patrol to arrive, the Ski Pro should arrange to meet the remainder of the group at a specific time and place.

Ultimately the goal of a ski instructor is to provide a safe and enjoyable learning experience. The key words are: safety, fun, and learning.

b) Make notes as to the situation at the time of the accident, including:

- Snow conditions.
- Instructor's location.
- Student's location.
- How accident occurred.
- If another party is involved (i.e., in a collision), get that party's name, address, local address, etc.
- Note if any other students can make a statement and ask them to do so.
- Make any necessary measurements (i.e., if student has gone off a run, hit something, etc.), use ski length as measuring device.
- Note any relevant information in regard to your instructions to the class and the injured party's response to such instructions.
- The date and time the notes were taken (may be needed in court).

c) If the injured party is taken by the Ski Patrol, check what the injury was and what steps the Ski Patrol has taken.

2- Do not make any statements about the accident in public. Definitely do not make any judgments or speculations to anyone.

SAFETY AWARENESS

Safety is a fundamental part of every ski lesson. As in many sports, skiing presents some hazards and the instructor can help a great deal by simply alerting students to this integral part of skiing.

Are your students cold ?

Coldness slows down the ability of the muscles to function to their full potential. Cold students also have a much shorter attention span and learning in general is hampered. And being cold isn't necessarily caused by frigid temperatures. Being wet, sitting through a windy chair-lift ride, sitting inside after eating or simple inactivity can make your students "cold." Muscles must be warmed up to make them elastic so they can perform their best without causing injury. A short warm-up routine will instill good habits in your students as well as bring the body and mind up to operating temperature. Start slowly and build up to what the fitness of your students can handle. Be alert to signs of over-doing it.

Warm up

- Walk in place, increasing the tempo and height of the steps.
- Slide skis back and forth, increasing the tempo and range of motion.
- Hop skis slightly off the snow, see how high you can hop.
- Hop back and forth over an imaginary spot on the snow.
- Swing the arms back and forth and in circles.
- Clap hands alternately in front and behind the body. See how fast you can do it.
- For better skiers, take an easy run.

Are your students tired?

Good teachers are constantly alert to signs of fatigue in the class. Fatigue is a major cause of accidents and injury in skiing. Adjusting the pace to suit the fitness level of the students will not only maximize safe learning but will leave the student with a more positive impression of the lesson. Few students will return to ski school if their first lesson is an endurance test.

Are your students ready?

As a professional, part of your responsibility is to pass on advice if it has safety implications. Use judgment and be tactful.

1. Boots: are they compatible with modern bindings? Are they closed properly?
2. Bindings: do they have ski brakes or safety straps? Is the boot in the binding properly? (Don't adjust your student's bindings on the slopes).
3. Clothing: does it offer some protection from wind and water? Will it be warm enough for where you will be going?
4. Sun Protection: do they have sunglasses or goggles?
Do they have UV blocking sunscreen for skin and lips? (carry some with you).

Use of lifts

Ensuring that clients know how to use the lifts is the responsibility of mountain management, not the ski instructor. However, check that students are familiar with correct lift procedures prior to approaching a lift, and arrange for instructions from lift personnel if they are not.

Be sure that students know the hazards of bouncing chairlifts and pulling T-bars off the side of the track. Ensure that safety bars are used if provided.

Note: the C.S.I.A. does not recommend that young children ride chairlifts without supervision.

ALPINE RESPONSIBILITY CODE

Know the Alpine Responsibility Code. The instructor should be a model of responsible behavior on the slopes. As well as paying close attention to the group's well being, a good instructor includes safety awareness in every lesson. You'll find suggestions throughout this manual for conducting your lessons safely.

1. Always stay in control. You must be able to stop, or avoid other people or objects.
2. People ahead of you have the right-of-way. It is your responsibility to avoid them.
3. Do not stop where you obstruct a trail or are not visible from above.
4. Before starting downhill or merging onto a trail, look uphill and yield to others.
5. If you are involved in or witness a collision or accident, you must remain at the scene and identify yourself to the Ski Patrol.
6. Always wear proper devices to help prevent runaway equipment.
7. Observe and obey all posted signs and warnings.
8. Keep off closed trails and closed areas.
9. You must not use lifts or terrain if your ability is impaired through use of alcohol or drugs.
10. You must have sufficient physical dexterity, ability, and knowledge to safely load, ride, and unload lifts. If in doubt, ask the lift attendant.

Chapter 2: TECHNIQUE — THE CANADIAN APPROACH

INTRODUCTION

The Canadian technical approach to skiing is a result of the evolution of a sport. Equipment has changed since the first skiers hit the slopes, but the laws of physics haven't.

Many of the forms of balance and movements of contemporary skiing can be traced to McCullough of the 50's, Killy in the 60's, Stenmark through the 70's into the 80's, and Tomba through the 90's to the "Herman-ator" and beyond. All of them showed the world the best way to ski with the equipment of the day, and all of them balanced according to physics and biomechanics.

Through competitive skiing and looking for easier ways to teach, instructors and coaches have developed systematic approaches to analyzing and developing skiers. The sport of skiing can be defined by technique, or science, but the development tools must be practical and effective.

The building blocks of the Canadian Approach are the result of the combined efforts of thousands of people in 2 organizations who have worked with these ideas through ski schools or coaching.

The concepts presented here are the result of people sharing ideas on skiing, and looking for better ways to do this.

TECHNIQUE - THE CANADIAN APPROACH

The Canadian Approach to ski technique combines theoretical knowledge with practical tools for skier development. It is the shared approach of the Canadian Ski Instructors' Alliance and the Canadian Ski Coaches Federation.

1- Technique (technical base)

Together, physics and biomechanics are the technical tools that provide the theoretical knowledge for effective skier development. Biomechanical principles and physics apply to all sports and activities and can help to understand why skiers balance in certain ways and use particular movements.

Physics and skiing: physics is the foundation of ski technique. With gravity providing the primary motive force, a skier balances and interacts with the forces provided by an ever changing ski environment.

Biomechanics and skiing: an understanding of practical biomechanics links ski technique to physics, and helps to describe efficient and effective body movements.

2- Methodology (assessment and development tools)

These teaching methods provide a structure for skier assessment and development and are the on-snow development tools that instructors and coaches use.

Turn phases link a skier's movement patterns with specific parts of the turn. They can help in prioritizing and sequencing skills.

Planes of balance are a way to analyze a skier's balance as they move in curved trajectories down the mountainside. They provide a method for identifying balance problems and respond with targeted skill development.

Skill development is the core of the Canadian approach. It is a way of understanding all skiing through 5 elements. The skills system identifies areas for development, and uses a tactical approach to improve abilities.

PHYSICS AND SKIING

Alpine skiing presents a unique physical environment. Unlike sports where speed and forward motion are attained by internal muscular effort, in skiing gravity provides the pull while the skier uses body movements to influence speed and direction. From a technical perspective, there are two criteria for success:

- The ability to choose and maintain a trajectory: for the racer, their line is imposed by the race course while a free skier chooses it according to terrain and the desired outcome.
- Efficiency: for the racer this means speed, and for the free skier it means creating any direction change with the least amount of physical effort and resistance.

Defining Efficiency

With gravity as the primary motive force, speed in skiing has much to do with reducing braking. Carefully timed muscular effort can also contribute to speed, if the skier “pushes” in a way that compliments gravity. Efficiency applies at all speeds. For recreational skiers of all levels controlling direction change while conserving momentum and muscular effort produces skiing that is balanced, relaxed and results in full control of the situation.

This approach is adaptable to the needs of all skier types, as the skier can:

- Generate and/or maintain speed wherever possible.
- Control speed when necessary or desirable.

Movement and Motion - 20 years as a technical perspective

The concept of movement and motion was introduced by the CSIA as a perspective on the sport of skiing. First presented at Interski in 1983, it still successfully explains observed movement patterns at all skill levels and situations.

Movement and Motion defines balance in skiing as the relationship between the COM and BOS. Movements are what the skier does to influence the line of motion, or the path of the COM. As

the mass moves down the slope it seeks the path of least resistance, or the most direct line. To change direction, the skier places the skis, or BOS, at an angle to the trajectory of the COM and edges them. Skiing on an arc is a series of deflections, with the BOS supporting and deflecting the COM on every point of that arc.

With the overall goal of being able to follow a chosen trajectory at a chosen speed with the least possible resistance and muscular effort, the skier must move constantly to maintain balance and control direction change.

Technique vs. methodology

Technique: theoretical or scientific analysis of balance and movement patterns of skiers according to the principles of physics and biomechanics.

Methodology: practical tools for skier development used by instructors and coaches to develop good technique in skiers.

A good technical understanding does not necessarily imply effective use of methodology. Similarly, use of methodological tools should be based on theoretical understanding of technique.

FORCES IN SKIING

A skier sliding down a slope is held to the slope by a portion of the force of gravity acting perpendicular to the slope. Another portion of the force of gravity acting parallel to the slope pulls the skier forward and down the hill.

Opposing these forces is the friction between the skis and the snow, and the friction of the air against the skier.

Turning adds two other forces. Centrifugal force pulls the skier away from the centre of the arc. To continue turning, the skier resists this pull, creating a centripetal force.

Combined forces

Above the fall line centrifugal force and gravity pull in different directions, and after the fall line they combine. Gravity and centrifugal force create a combined resultant force. The angle of the resultant force is the line of inclination that the skier adopts to stay in balance.

BALANCE WHILE SLIDING AND TURNING

Balance is defined in the relationship of the Centre of Mass and the Base of Support. The COM is supported by the BOS at whatever angle is appropriate to resist outside forces.

The Centre of Mass

All bodies have a Centre of Mass. The COM represents the balance point of a three dimensional object. Gravity and all other forces act on the COM.

- The COM is usually inside an object but not always. In a doughnut for example the COM is in the hole. It may actually be outside an irregularly shaped object.
- Due to the weight of equipment, the COM is lower in a skier than a non-skier
- The COM is not a fixed point, and moves as an object changes shape. Any body movements displace the COM. As efficient skiing implies a smooth trajectory of the COM, any unnecessary movement can adversely affect balance. Expert skiers control their movements so the COM smoothly moves both within the body and down the slope.

The Base of Support

For a body to balance, the force acting through the COM must also act through the BOS. This means the BOS supports the COM.

- The BOS is the area between all points that support the body. A wider stance broadens the BOS, increasing stability. A pole plant also momentarily increases the BOS.
- Balancing over a smaller BOS is also possible, although the forces required to push the skier over are less. A smaller BOS gives less margin for error.

Maintaining Balance

A skier balances with continual series of adjustments in anticipation and reaction to the combinations of forces encountered. To stay in balance the skier must be able to adjust either COM or BOS quickly. Because the lower body has less mass than the upper body, quick adjustments are often made with the feet (BOS).

Overcoming resistance

Heavy snow, skidding, edging or bumps can continually or momentarily increase ski/snow friction, or resistance. To stay in balance the skier compensates by moving the BOS forward relative to the COM so that forces continue to act through the centre of the ski.

MOVING ON AN ARC

When the COM is moving it has momentum. On an arc, the COM wants to fly off in a straight line called a tangent. The tangent at each point on the arc is the direction of travel at that point in time. The most natural position for balance is facing the direction of travel. This is why the hips and torso face slightly to the outside of the turn at any point in the arc.

The angle between the tangent of the arc of the COM and where the skis are pointing is called a steering angle. With the skier facing the direction of travel, a longer radius turn will show a smaller steering angle than a short radius turn.

Ski sidecut provides a built in steering angle between the centre axis of the ski and the flare of the tip. This steering angle decreases down the length of the ski, hence the tips provide more turning potential than underfoot or the tail of the ski. This provides the self-steering effect of today's skis.

BIOMECHANICS AND SKIING

Biomechanics is the application of mechanical and physical principles to body movements. It can help explain efficient movement patterns for any sport or activity.

The 7 Biomechanical Principles have been developed by the NCCP (National Coaching Certification Program). Instructors and coaches with a good understanding of these principles can make better skill assessment and development decisions. The 7 principles also provide a tool to evaluate technical trends in skiing in terms of function, not fashion.

1. Stability

Stability is increased by lowering the centre of gravity and/or widening the base of support. Conversely a narrower stance is less stable, but can facilitate agility and quickness. This explains why a low, wide stance is preferable for a beginner or for a racer at high speeds on an icy surface, while an expert in bumps or soft snow may choose a taller, narrow stance.

2. Maximum force

To produce or resist maximum force, as many joints as possible must be involved. Also closely related to stance, this principle is due to the mechanical advantage created by all the joints and muscles working together.

3. Velocity

Producing maximum velocity requires the use of all available joints in order of largest to smallest. This is easily seen in throwing sports. In skiing the feet are in contact with the snow, so the sequence is less apparent and practically simultaneous. A skier needs to use the ankle, knee and hip joints together, but the big joint (the hip) must be inside the turn for the other joints to work effectively.

4. Impulse

Impulse is force multiplied by time, and increasing impulse increases velocity. Impulse is the skier's work energy added to the forces of the turn. Some of this energy will become potential energy stored in the ski and boot that will provide kinetic energy when it is released. Impulse can add life and rebound into skiing, but applying too much, or at the wrong time can disrupt the glide of the ski.

5. Direction

Movement occurs in the direction opposite to the applied force. For example, a skier wishing to accelerate can apply force at the top of the arc to contribute to direction down the hill. Similarly, a skier wishing more direction across the hill will apply their force mid-way through the arc, and a skier wishing to control speed will apply force at the end of the turn, effectively providing some direction back up the hill.

6. Angular motion

Angular motion is produced by the application of force acting at some distance from an axis (torque). In skiing, the skis act as lever arms creating torques on the body. Upper and lower body separation is a way of resisting the torques so the skier can stay balanced. Less effort is required to resist twisting forces if the hands are held wide. By spreading the mass of the arms out, the skier is rotationally stabilized.

7. Angular momentum

Angular momentum is constant when an athlete or object is free in the air, and conserved when grounded. The “spinning” forces involved in turning have momentum. If a skier is “spinning” on ground and loses contact with the snow, the spinning will continue. Conversely the skier can store energy like a twisting spring to manage carving and create turn linking. Stopping this momentum with a pole plant lets the legs redirect between turns independently of the upper body.

TURN PHASES

Turn Phases are a way of linking a skier’s movement patterns with specific parts of the turn. They provide a template for skill assessment and development by prioritizing and sequencing skills.

Turn Phases as a working tool

Although sequenced from 1 to 3 for reference, turn phases can be approached in any way that is effective for results. For example, working the timing of edging in phase 3 could be a way of developing stance in phase 1. While turn phases provide an excellent way to break down turns, skill development should always lead to linked, fluid skiing.

Phase 1: Completion to “neutral”

The skier must be balanced to manage pressure and forces generated by the turn.

The COM is released from its arc, diminishing the line of inclination. This takes the skier to flat ski(s) between turns, and lets the COM travel freely down the hill and towards the inside of the next turn.

The COM and the BOS come out of the turn together, with the skier in a balanced, neutral stance. As the skis flatten, they are released from their arc, diminishing the steering angle.

Phase 2: “neutral” to fall-line

A new turning platform is established. In parallel turns, the skier should feel the side cut of both skis.

COM maintains its momentum, moving forward and inside the arc.

The skier stays centred in anticipation of the loading that will occur later in the turn. Steering with the lower body creates a natural upper and lower body separation.

Phase 3: Fall-line to completion

The skier progressively increases edge angles through angulation. As the turn radius tightens, steering angle increases.

To manage the external forces, parallel skis as well as legs and upper body stability are crucial.

The steering and loading is timed for direction change and/or speed control and helps to create linking back into phase 1.

Adjusting Phases to different types of skiing

Turn phases apply to wedge turns also:

1. With equal weight on both skis, a beginner will glide between turns.
2. The turning platform is established as the skier creates balance over the outside ski through separation and subtle angulation.
3. Edge increase is subtle, but grip with the outside ski creates deflection.

In steeps and bumps the timing of the phases change:

1. The edge release happens quickly and is often initiated with a hop or release of pressure.
2. Upper/lower body separation results from an active pivoting of the legs beneath the skier.
3. Steering is active, and helped by terrain contours. Edging later in the turn controls speed.

PLANES OF BALANCE - A TOOL FOR UNDERSTANDING SKIING

The 4 planes of balance define the relationship between a skier’s base of support and centre of mass as they move in curved trajectories down the mountainside. Instructors can use these planes as a way of assessing balance and responding with targeted skill development.

The lateral plane

The lateral plane is the ability to adjust width of stance and body movement to balance in a side-to-side manner. It refers to adjustments in width of stance, the blend of inclination and angulation, and the way the skier changes edges between turns. Balancing on the lateral plane is the way skiers greet forces that are generated in a turn (related skills: edging, pressure control, stance, timing).

The fore-aft plane

The fore-aft plane defines the skier's ability to maintain alignment with the feet and COM in a forward/backward plane. Maintaining balance on the centre of the side-cut requires adjustments to compensate for speed, resistance, and terrain changes. An example of poor fore-aft balance are skiers that get "caught back" as the skis are tipped from across the hill towards the fall line. Another is over-flexed ankles, causing the COM to be ahead of the feet. Good fore-aft balance requires a mobile stance and anticipation of terrain and snow (related skills: stance and balance, edging, pressure control).

The rotational plane

The rotational plane describes the control and adjustment of rotational movements between and within the upper and lower body segments. Initiating a turn by twisting the hips or upper body is a common example of imbalance in the rotational plane. Similarly, a skier who faces too much to the outside of the turn is not balancing efficiently. Natural alignment in the rotational plane has the skier facing their line of travel. This is a tangent to the arc of the centre of mass at any given time. Good balance on the rotational plane is created largely by a relaxed stance and allowing ski side-cut to lead the turning effort (related skills: pivoting, timing, edging).

The vertical plane

The vertical plane is the skier's ability to adjust up and down movements relative to the edge angle of the skis. Regardless of the degree of lean (inclination), skiers bend and extend their legs to control snow contact and steering load. The patterns of these movements vary with the situation and desired outcome. An example is the bending between turns necessary at higher speeds to maintain snow contact. However if an abrupt un-weighting of the skis is desired in heavy snow or steep terrain an extension through the same part of the turn could be more effective (related skills: pressure control, timing and coordination).

SKILL DEVELOPMENT

In the skill development model, skiing is analyzed as a set of basic ingredients that exist in all situations for all skier types. The blend of the skills determines the success of the skier in any given situation. As a teaching and coaching tool, skill development is used to assess performance, prioritize student needs, and develop strategies for improvement.

Stance and balance

Stance is the body alignment of the skier. A good stance is stable, yet mobile, and lets the skier make balance adjustments.

Balance is the skier's use of the neuromuscular system to keep from falling down. Optimal balance uses the least amount of movement and muscular effort to align the COM and BOS, supporting the skier and the forces of the turns. Stance and balance are the foundation for the application of the other skills.

Timing and coordination

Timing is the skier's ability to choose and use an action at the appropriate moment. Turn type, terrain and snow conditions all affect a skier's timing decisions.

Coordination is the skier's ability to blend motor skills into a common movement. It is determined largely by a skier's natural athletic skills, physical experience and sport specific training. Timing and coordination are grouped together, and also considered a foundation skill, as they determine the successful application of other skills.

Pivoting

Pivoting is the ability to utilize the legs and feet to help guide the skis in a specific direction. Whether the turns are carved or skidded, the lower body leads the turning effort.

Edging

Edging is the skier's ability to use a combination of inclination and angulation to control the angle of the skis against the snow and utilize their sidecut properties. Edging lets skiers control direction and/or speed.

Pressure control

Pressure control is the skier's ability to load and unload the skis at the appropriate time by balancing against turning forces and/or using muscular efforts. It is closely tied to edging and varies with the type of turn and terrain.

STANCE AND BALANCE

Stance variations

When working with stance it is important to accommodate individual body types. The width of hips or being naturally knock-kneed or bow-legged will affect the stance of individual skiers. Ski boot choice and alignment also affect stance. The goal is to create the most mobile and natural stance possible for any given skier.

Stance and stability

Width of stance varies with speed and snow conditions. Hard snow and higher speeds require the stability that comes from a wider stance. Similarly, beginners will benefit from a broader base of support. In softer snow, a narrower platform may be easier to control. In situations requiring quickness such as bumps and broken snow a narrower stance may also be of benefit.

Balance as a dynamic process

Balance is not a static position but a continual series of adjustments to external stimuli. This is especially true in skiing where the forces trying to throw the skier out of balance are strong and varied. To “stay in balance”, the body reacts to the sensory feedback it receives from the inner ear, visual cues and the sensation of pressure distribution under the feet. Muscular activity keeps the skeleton upright and the COM over the BOS. Balance movements function in all directions: fore-aft, side to side, up and down, and rotationally. Beginner and intermediate skiers tend to “think out” their balance reactions, while advanced skiers and experts acquire automatic reactions that involve only the muscles needed. Experts also anticipate possible imbalance, drawing on experience to adjust to changes in snow and terrain in advance. This makes balance less reactive, making the expert more precise and efficient.

Note: see Biomechanics and skiing: Stability, Maximum force and see Planes of balance.

TIMING AND COORDINATION

Timing as decision making

Timing is the skiers’ interaction with their environment as they learn to interpret situations and apply skills in the right blend and sequence. In any situation, the skier adjusts the timing of their movements for the desired result. This aspect of skiing is developed through free skiing and guided mileage.

Coordination of movements

Spatial awareness and motor skills are the tools for balance, and skiers coordinate their movements to control their motion down the slope. Natural athletic ability determines much of a skier’s coordination but it can be developed at any level. Developing muscular and sensory response lets a skier react precisely and quickly. Warming up, varied skill progressions and repetition of key movements will help develop coordination.

Timing and Coordination for development levels

At a beginner level timing and coordination means developing mobility, and rhythm through serpentine turns. With more speed the challenge is changing both edges simultaneously, and developing a range of movement for better edging and pressure control. With mileage the motor responses are quicker and more instinctive and the task is refining the sensory skills and decision making. At any level timing and coordination determines the successful application of the other skills.

Note: see Biomechanics and skiing: Impulse, Direction, Angular momentum.

PIVOTING

Pivoting and direction change

With the upper body facing the direction of travel, turning the legs in the hip sockets creates a steering angle. This, combined with ski sidecut, deflects the skier in their arc. Pivoting is seen in the relationship between the upper and lower body.

Pivoting and balance

The ability to guide the skis on their path without relying on hip or upper body rotation will help a skier maintain balance by keeping the body over the outside ski. From the hips down there is less mass than in the torso, so changing direction with the lower body is quicker and lets the COM move in a smoother trajectory.

Pivoting and edging

Upper/lower body separation enables a skier to balance on their edges through angulation. Turning the femur in the hip socket allows the hip joint to be more mobile laterally to the inside of the turn, helping to balance on the edges.

Pivoting and rotation

Turning the hips or the upper body before the legs at any part of the turn is called rotation. At the top of the arc (phase 2) this could be caused by a rushed weight transfer (timing and pressure control) or an imbalance from phase 1. Through the bottom of the arc (phase 3 into 1) it may be caused by poor steering mechanics or a loss of control of angular momentum.

Note: See Biomechanics and skiing: Angular motion, Angular momentum and Planes of balance: Rotational.

EDGING

Edging and Direction Change

When there is a change of direction, edging is involved. Edging provides the grip that counters the force of gravity and centrifugal force, keeping the skier turning. The degree of edging is determined by how fast the skier is going when they turn, and whether they wish to decelerate, maintain speed or accelerate. Good edge control makes the ski grip but allows maximum gliding for any given direction change.

Edging and Pressure Control

Turning on an edged ski or skis generates forces that give the skier a sensation of weight, or pressure. When the skis are flattening (phase 1) they are releasing their grip and the load against the snow diminishes. When the skis are turned across the line of travel (phase 2, 3) forces build and the COM gets deflected. Edge angle increases and pressure builds. Bigger forces from higher speeds and steeper terrain place greater loads on the skier which must be managed.

Inclination and angulation

Inclination refers to the line of lateral balance between the BOS and COM. This degree of lean is what the skier must do to counteract the forces of the turn, and it changes within each turn in response to speed, external forces and intended path of travel. Too much lean and the skier stands on the inside ski or falls over, and not enough makes it impossible to maintain the arc of the turn.

Angulation is the bending of body segments as the skier inclines. Controlled by the use of ankles, knees and hips, it keeps the skier in balance against the edges and lets the skier produce edge angles that are greater than what can be achieved with inclination alone.

Turn Initiation – changing the line of inclination

While balanced on an arc, the COM is inclined to the inside of the BOS. To change direction, the skier must change this line of inclination, putting the COM to the inside of the new arc. A wedge or stem is a way of placing the BOS to the outside of the new turn, changing the line of inclination to the new side.

In parallel skiing this “toppling” can be achieved by releasing pressure on the outside ski and/or transferring it to the other ski. This effectively shifts the BOS from the downhill ski towards the outside of the new arc, changing the line of inclination. A smooth release in phase 1 is also a way of getting the COM to the inside of the new arc. Most edge changes involve combinations of these elements, and can be passive or active, simultaneous (parallel) or sequential (wedge), depending on the skills and desires of the skier.

Note: See Biomechanics and skiing: Stability, Direction, Impulse, Angular motion and Momentum, as well as Planes of balance: lateral.

PRESSURE CONTROL

Pressure control – the sensory skill

Alternating between weightless acceleration and the heaviness of turning and resisting gravity is part of the allure of skiing. The dynamics of turning creates loads that the skier manages through good biomechanics and balance, giving the sensation of pressure and gliding. Terrain and snow conditions also contribute resistance and acceleration. It is this range of possibilities that skiers learn to anticipate and react to.

Controlling snow contact (“up and down”)

Movements of flexion (bending the body) and extension (lengthening) act as a suspension system, and keep the COM on a stable path and the skis in contact with the snow. These “up and down” movements happen on the line of inclination, or perpendicular to the edge angle of the skis. The moment of maximum inclination is often when the body is longest, even though the COM is closest to the snow. When the COM naturally rises as the line of inclination changes between turns, the skier bends to control the amount of rising. As ski reaction and/or terrain difficulties increase these effects are amplified.

Fore/aft pressure

Fore-aft mobility takes advantage of ski design and lets the skier adjust quickly to terrain changes. Today’s skis are designed to be turned from the middle of the sidecut, but the front of the ski must be in contact with the snow for it to help initiate the arc (phase 2). If pressure is too far forward the COM will start to take over (rotation). When the amount of resistance the skier encounters increases due to direction change or snow resistance, the feet will appear to be further ahead relative to the COM. Adjustments can be made by moving the BOS, the COM, or both.

“Weight” Transfer

Contemporary skiing is more two-footed than ever. Skis are designed so that both contribute to the turning effort. The turn starts with weight more equally distributed on both skis (phase 1). As turning forces build (phase 2, 3), the load shifts naturally to the outside ski. Between arcs as the COM crosses over the path of the BOS, the skis are flattening and the load shifts back to both feet on its way toward the new turning ski. This sensation of ‘weight’ or pressure transferring from ski to ski is generally gradual and is timed to cause minimal disruption to the path of the COM and the gliding of the skis.

Note: See Biomechanics and skiing: Impulse and Direction, and Planes of balance: Vertical, Lateral, and Fore-aft.

TERMINOLOGY

Angulation: the lateral angles formed between segments of the body.

Balance: the use of the neuromuscular system to maintain an athletic posture and alignment of the COM and BOS.

Banking: the tipping of the shoulders and the upper body into the turn. It generally is an unstable position, and it is often associated with rotation. Synonym: tipping.

Base of Support (BOS): the area between all points that support the body. It generally is referred to as the feet, but it is any point of snow contact including skis and poles.

Carving: turns with little or no skidding, with the tails of the skis following the tracks made by the tips.

Christie: a turn or part of a turn, done with the skis parallel.

Centre of Mass (COM): the three dimensional balance point of an object.

Counter-rotation: the action of upper and lower body turning against each other, based on physical principle of an action having an equal and opposite reaction. If upper or lower body are turned, the other segment will turn in the opposite direction. A weak force and most effective if the skis are un-weighted.

Cross-over: the crossing of the trajectories of the COM and BOS between turns; related to edge change.

Edge angle: the lateral angle formed between the base of the ski and the slope.

Edge change: the change of balance from one edge (or edges) to the other.

Extension: the lengthening of the body by un-bending joints. Opposite of flexion.

Fall Line: an imaginary line following the inclination of the slope at any point. Where a snowball would roll if released on the slope.

Flexion: the shortening of the body by bending joints. Opposite of extension.

Inclination: the degree of lean used to balance against the external forces generated by turning.

Lead change: the natural tendency for the inside ski to be ahead as a result of the lower body turning.

Line of motion: the path that the COM follows.

Linking: the smooth transition between turning arcs. Related to edge change.

Movement: body actions initiated by internal muscular efforts. Can affect balance on all planes.

Parallel: a position of the skis where the longitudinal axes are parallel and edge angles are the same.

Rotation: the twisting of the hips or upper body into the turn, often causing imbalance.

Self steering of skis: the inherent turning tendency of skis, due to sidecut and longitudinal flex.

Separation (upper and lower body): refers to the steering effort being led by the lower body, with the upper body naturally facing the direction of travel, or the tangent of the arc.

Sidecut: the shape of the ski defined by the width underfoot versus width tip and tail.

Ski reaction: the use of stored energy in ski and boot to provide rebound for turn linking.

Skidding: the sideways travel of one or both skis across the snow. Necessary for speed control.

Sliding: the forward travel of one or both skis on the snow.

Steering: the blend of edging and pivoting with the control of the resulting pressure. Steering allows the skier to choose a variety of turn shapes. Different blends of edging and pivoting allow the skier to control speed or to maintain speed or accelerate by reducing braking.

Steering angle: the angle formed between the longitudinal axis of the ski and the direction of travel of the skier.

Stem: a position of the skis where the tails are further apart than the tips. Seen in Wedge (snowplow) turns as a braking or steering device, or if the tail of the downhill ski skids more than the tip.

Stepping: a step, or transferring of weight from one ski to the other.

Tipping: the tipping of the shoulders and upper body into the turn. Generally unstable position, and often associated with rotation. Synonym: banking.

Traverse: sliding forward on edges at angle to the fall line.

Wedge: ski position with tips together and tails apart. See Stemming.

Weighting/Unweighting: the control of the load or pressure against the snow. Affected by moving COM quickly up or down, by increasing or reducing steering, and by the muscular forces applied by the skier.

Chapter 3: FAST TRACK TO PARALLEL

STUDENT - CENTERED TEACHING AND THE SKILLS CONCEPT

Learning to ski is a process of adapting to new sensations and learning to control the new environment of snow and sliding on skis. Modern teaching methodology is based on the concept that students can make the most progress and become better skiers if the system is designed to teach and refine basic skills. Skill development provides the skier with a framework that allows infinite degrees of adaptation to any conditions. Skill development is the perfect answer to a classic open-skill sport.

Basic skiing skills can be taught and developed at all stages of student ability and should provide the focus of every instructor's lesson plan. In a system based on skill development, real progress is not measured by the traditional stages of skiing progressions called manoeuvres, but by the level of skill the student has reached. Exercises and manoeuvres are only the vehicles to refine skills, not the focus of the lesson. Skill development frees the instructor to innovate, modify exercises, and to deliver useful, realistic information as terrain changes.

HOW THE SKILLS CONCEPT IS APPLIED

The five basis skills, Stance & Balance, Pivoting, Edging, Pressure Control, and Timing & Coordination are present to some degree in all stages of skiing. But in the beginning stages, some skills are much more important and evident. The instructor's job is to provide an environment where the appropriate skills are taught and challenged so the student will make the most progress. The Skill Development Chart on page 3.4 provides an overview to guide instructors from the earliest stages to parallel skiing. For the most talented students, the road to parallel will be quicker as they follow the "Fast Track" series of steps. A second column of exercises and drills is provided to further develop skills at each stage. Combined, the chart provides enough information to bring any student from the first hour on skis to parallel skiing. The chart also indicates the relative importance of each skill to guide the instructor in determining where to focus attention.

The progression from beginner to expert

Modern skis have made learning to ski easier than ever. They have also made it possible to progress from beginning stages to parallel skiing more quickly than ever. The following pages outline methods and procedures to prepare instructors for all stages of learning.

THE BEGINNER PHASE - AN INTRODUCTION TO SKIING

The students

Beginner students may be completely new to skiing, snow, physical activity, etc. and often have very basic concerns about their safety and well being. They are usually a little uncomfortable in ski gear, even if it fits well. They may not be familiar with skier etiquette and other basic concepts of skiing.

Goals

- To make the first skiing experience a positive one through an introduction to mobility.
- To create a safe environment.
- To turn students on to the sport of skiing.

- To instill confidence in students.
- To achieve changes in direction.

Skills

- Stance and Balance.
- Pivoting.

Lesson plan

- Develop mobility.
- Develop equipment awareness.
- Achieve straight running in a wedge.
- Achieve linked turns.
- Develop lift procedure awareness.
- Promote safety: review Alpine Responsibility Code.

Each beginning skier discovers a new and stimulating environment when introduced to skiing. The ski area itself can make a newcomer feel bewildered among the unfamiliar surroundings. Means of balance and mobility are greatly altered by ski equipment, which at first appears more inhibiting than functional. Therefore, the task of the instructor is to introduce the skier to this foreign environment and also present, in an enjoyable manner, the very thrill of sliding and the basic skills of downhill skiing. This is a critical time for your students. This first lesson may be the most important one they ever take.

- Move at their pace.
- Keep your presentation light and be non-judgmental, this is a time for experimentation and discovery.
- Do not assume anything.
- Encourage students to talk and ask questions.

INTRODUCE YOUR STUDENTS TO SKIING

Sometime during the initial formalities of name introductions, checking tickets, and so forth, it is important to verify that your students are ready. Quickly check clothing and equipment. First impressions matter, and this first encounter with the instructor will have some bearing on the rest of the lesson. Speak to your students and take an interest in them to make them feel comfortable. Be a good listener. Pay attention to everyone.

First steps - Some ideas to start with

You may have to walk to the beginner area before putting skis on.

- Show a safe and easy way to carry equipment.

Comments: Demonstrate how to place the skis together using the ski brakes to secure them. With ski tips forward, place the skis on the shoulder so that the whole binding is behind the shoulder. One arm can then easily balance the skis.

- Assemble the group in a circle on the flat with the instructor in the middle and begin a series of discovery exercises so that your students become familiar with some of their equipment. Combine these initial steps with a warm-up and draw attention to the importance of stretching and warming up before skiing.

Comments: The walk to the beginner area will give the instructor a feeling for the energy level of the class. Otherwise, general appearance and age may give clues to fitness. A short warm-up and stretch will give the students a chance to get accustomed to being in a class. Do some bending and stretching from side to side, toe touching and arm circles to loosen up.

FAMILIARITY WITH EQUIPMENT

Skis: put skis aside. Swing feet to familiarize with weight and mobility of ski boots. Use poles for support.

Comments: if the snow is soft, stick skis upright in the snow. If the snow is hard, place skis on the snow within the group circle or show how to hang ski tips in the pole straps to keep them off the snow. Otherwise, many pairs of skis lying around on the snow can create a serious hazard to other skiers. Beginner areas are often crowded and hectic enough as it is.

Bindings: show how to put skis on and take them off. Make sure everyone can operate their bindings without help. Stress the importance of clean boot soles and binding maintenance.

Comments: if you are helping the student put his ski on, do not put your hands near the bindings. Heavy boots and powerful springs can do serious injury to your fingers. If the binding is incorrectly set, do not adjust it. Send the skier back into the shop for professional attention.

Boots: poorly fitting boots or boots that are too stiff or too soft can hinder learning. Ensure that the boots are comfortable and properly adjusted. Also, see that the student can flex enough to have some ankle bend.

Comments: snow can be removed from boot soles by tapping the boot with a ski pole or by scraping the sole on a sturdy part of the binding.

Poles: show the correct way to place and adjust straps if the poles are so equipped.

FAMILIARITY WITH SLIDING

Stance

- Finding a good stance is one of the most important things the student will learn in their skiing career. Stress sensitivity to pressure on the sole of the foot and promote a slightly flexed, “ready” position common to many sports.

- Rock back and forth to experiment with finding a balanced position and relate that to stance. Provoke discovery by leading a discussion with your students; ask questions. Relate questions to how it feels, for example, “Where do you feel the pressure now?”

- Experiment with the sensation of sliding the feet back and forth under the body to reinforce feet moving rather than body.

- Try turning legs and feet, first singly, and then into a snowplow position to simulate what you will expect of them. Strive for the same basics of stance just introduced.

Comments: if the student has trouble making a wedge, take the boot in your hands and ask him to resist the twisting pressure you are applying. It may be a completely new kind of muscular action that the body needs time to learn. This is an important first step.

Most students will be ready to start sliding and learning to turn. For others you may have to introduce the basics of sliding with more steps and allow more time for them to become comfortable with movements while sliding. See some suggestions under “Mobility” on following pages.

Mobility

- Familiarize with the weight and length of skis by lifting one foot and pivoting. Put the ski on the snow and make a pressing movement as if spreading butter. Use poles for support.
- Try balancing exercises to increase stance awareness. Do not ignore this important stage.
- Lead the group in a circle. Show how the ski is slid along the snow and then the weight put on it. Use poles for support.
- Challenge students with bending and stretching games to encourage movement while sliding.

Try sliding with one ski off. This will allow the students to experience the slipperiness of skis but still have control over speed. Show how to pivot the ski on the snow to get around the corner. Terrain should be level.

Comments: some students take to this new mobility immediately. Having one foot free gives a feeling of control over speed and balance. For the ones who are still cautious, let them slide at their own speed. Keep everyone moving. That way they get important practise and no one has to try while everyone else is watching.

Safety: use a wedge to teach speed control. Show how to stop by pushing the heels out into a “V”. This is an important safety step. It also gives the student confidence. Once the students can control speed they are ready to start turning.

Comments: continue to draw attention to feelings in the feet and pay close attention to the kind of stance you are already molding.

Note:

- Be alert for students who show signs of fatigue. If they fall and are having trouble getting up, ask them to wait for your help. Tell others to rest.
- Students should ski as much as their energy allows. Do not stand around.
- Place a pole or some other marker in the snow to mark the starting point for the class:

- a) It sets a goal by which they can measure their progress.
 - b) It prevents the class from slowly creeping across or up the hill.
 - c) It stakes out your territory to put the skiing public on notice that something is happening there and prevents other classes from encroaching on your terrain.
- You may have to slide beside timid students to lend physical support.
 - Some resorts have lifts for beginners at this stage. Use the lift as soon as possible. A short, easy lift can help the student by increasing mileage and making the whole experience less tiring.

Comments: stop before getting on the lift for the first time and let the students watch others getting on. Make sure the lift operator knows that the beginner is inexperienced and may need additional help.

Be non-judgmental. Do not worry about technical analysis, simply keep the goals in mind:

- Introduction to skiing.
- Stance.
- Mobility.
- Speed control.

The rate of progress depends a great deal on the individual student. The degree of success depends on the energy and judgment of the instructor. Teaching beginners is hard work. Your lesson should be one long demonstration. When you talk it should be to encourage. Teachers must understand that the awkward phase that most students go through is unavoidable and normal.

Comments: organize the group so all students are moving and skiing as much as possible. You will notice some members of the class moving more expertly than others. Set higher goals for them while you help the rest of the class. Demonstrate ways of climbing up the slope. Side-stepping is easier for most beginners.

MANY WAYS TO PROGRESS

Ski equipment is undergoing a transition. Although conventional skis are still enjoyed by some skiers, many students are now learning on skis that are shorter and have more shape than previous generations of skis. In most cases the new skis are easier to turn. The result is that some students can follow an accelerated progression of learning that avoids some of the steps needed for traditional skis.

We call the accelerated route to parallel skiing Fast Track to Parallel. Regardless of which path the student takes, the initial stages outlined on previous pages are necessary to lay a foundation for future progress. They are:

- Familiarity with equipment, and basic mobility such as walking.

- Speed control with a wedge for safety and confidence.

Once a basic foundation is established, the instructor will progress the student according to capabilities. Some students will require more steps as outlined in the Skill Development Chart on. Others may progress quickly from one stage to another and only come back to earlier steps to refine skills. The instructor is free to move between Fast Track and traditional paths to satisfy the students' needs.

The following pages introduce two direct fast track methods:

1. Starting from a traverse.
2. Starting from a wedge and making progressively rounder turns.

Each method is a basic framework and approach to learning parallel skiing. Add to the framework with the appropriate exercises and drills to develop the skills of each individual.

Modern shaped skis are becoming the standard on slopes today. They are noticeably more shaped and shorter than traditional skis. The easy-turning nature of shaped skis enables most students to progress to parallel skiing more quickly than students on traditional skis. Ultimately, a good instructor chooses drills and exercises to develop skills according to the student's needs, not their equipment.

FAST TRACK TO PARALLEL

The fan progression (Method 1)

The route to parallel may depend on the terrain available. If sufficient width is available, the basic tools of wide track snowplow and traversing are ideal stepping stones to parallel skiing. Start in a shallow traverse and push the lower ski into a wedge. The result will be a gradual turn into the hill and braking. Repeat in the opposite direction. Ensure the location is safe before traversing!

As the lower ski is pushed into a plow, the student will slowly turn uphill. Ensure that weight is also placed on the ski as it is turned. The instructor may have to ski along on the downhill side until the student discovers they have control over speed and direction. Repeat the traversing and gradual turning in both directions on the slope. Continue to emphasize the importance of using the shape of the ski to cause the turn rather than muscular effort. As the student gains confidence

and control, steepen the angle of the traverse. If weight is distributed properly, the student will begin making parallel christies when slope and speed are sufficient.

Gradually increase the angle of descent as the students' confidence allows. This approach is called a Fan Progression. Eventually the student can turn down the fall line and make a complete christie. The fan progression works on steep terrain too but the results will look slightly different. Steep terrain promotes more skidding which is good for speed control and will provide useful skill development for all students. Once these rudimentary skills are mastered, students will be able to negotiate terrain that was previously too steep for them. Combine skidded christies on steeper terrain with exercises such as sideslipping to further improve your student's ability.

Precaution : traversing the slope is a safety concern at some resorts because of heavy skier traffic. Always choose terrain carefully.

Serpentine approach (Method 2)

Traffic patterns may dictate that you work in a narrow corridor. Teach pushing the skis out one at a time to effect a serpentine path down the slope. This will teach rhythm, mobility, and a sense of what steering angle will do. Be alert for proper mechanics, lower body movements, and stance. Shallow terrain is a must.

Develop awareness of Steering (Edging and Pivoting skills)

Shallow, linked turns in a narrow wedge will also develop steering. Once the linked snowplow turns become fairly consistent and speed is controlled, have students continue skiing. In a class situation, following in line behind the instructor provides much needed ski mileage and develops confidence in an enjoyable manner. Vary speed and turning radius depending on talent of students. Parallel ski position will develop naturally with speed and experience. Pay attention to simultaneous leg movements and weight on outside ski.

- You may cue the students verbally as you demonstrate because the mechanics are fairly subtle to the untrained eye. Use expressions that are easy to relate to (e.g. "push out on the heel, point your knees where you want to go, point your toes in the direction you want to go..."). In every case direct attention to the turning effort in the lower body.
- Encourage a slight flexion as the turn rounds off toward the end and a rising and relaxation between turns. The rising phase between turns is important and should be used to teach re-centering to a neutral stance, which is needed for all good skiing. In your demonstrations, these rhythmical movements should be visible to the novice skier.

Progress by adding speed and a longer steering effort.

Safety comments: instilling confidence is a good thing, but if you do too good a job the enthusiastic student may over-estimate his prowess and tackle something too difficult after the lesson. Give some parting advice on suitable places to ski and goals to work on for the next lesson.

EXERCISES – TEACH AND REFINE THE SKILLS

Turns in an easy slalom course made with ski poles can greatly progress students. It gives a sense of direction and a cue for turning. It also provides incentive to turn better.

Skills improve as the variety of exercises increase. Work toward more refined edging, more rhythmical turns and good use of ski poles. Long turns work best to improve edging and shorter turns work best to improve rhythm and timing.

Pivoting exercise

- On a shallow, groomed slope, have student make rhythmical turns in fall line by unweighting and pivoting skis alternately from side to side.
- Strongly emphasize a quiet upper body with arms held forward, while legs and feet turn beneath the torso.
- This exercise can be varied in order to experience positive results. Although turns in the fall line are usually best, it can be executed from a traverse or on a small bump.
- Introduce pole plant as a timing device and to help stabilize upper body. It is often helpful to practice motion of pole plant in a standing, static position. Encourage movement in lower arm only.
- Progress to rounder turns in wide track parallel, and begin to develop edging skills.

Basic Parallel — Unweighting and Simultaneous Leg Turning

The entire development of the Christie is “the progression” to the basic parallel turn. The most obvious accomplishment is that both feet are pivoted simultaneously to create a steering angle and the new turn. Up and down movements are used to decrease ski-snow friction. See chapter Technique — the canadian approach.

Often students will begin to ski parallel in a wide stance early in the progression by eliminating the snowplow naturally. Short skis, less fear, and good snow conditions help this to happen. At this Basic Parallel level, isolated movements that can be learned in exercises and drills will strengthen the skills and build confidence. Increased speed is also an important factor in skill development.

Turn initiation

When combined with more edging to create rounder arcs, a rhythmic Basic Parallel can be achieved. For best results terrain should be smooth-packed and shallow to moderate grade. Notice the strong steering effort and the subtle movement of the body to the inside of the turn for lateral balance. Lateral movements will become more and more important as the edging skill improves.

Develop Edging Using a Wedge

- On moderate grade and packed slope, have student initiate a turn by steering toward the new direction in a small wedge, matching before the fall line.

- Stress a deliberate effort to pressure the outside ski to begin edging phase.
- Turn is completed by encouraging increased edge angle and a strong steering effort.
- Develop an attitude of angulation to create edge angle.

There are many ways to side-slip, but it is probably best to first introduce the diagonal side-slip, releasing the edges by extension. This pattern is most similar to initiating a christie. A moderate grade makes side-slipping easier.

- Body faces direction of travel (motion).
- Weight is mostly on the downhill ski.

When side-slipping is combined with an effort to steer and increasingly edge the skis, the result is a christie uphill. At this stage one can return to side-slipping as an exercise to refine edging. Learning to christie deals with developing edging skills. This can be learned by becoming familiar with side-slipping skis, which promotes stance and balance and awareness of edge control; prerequisites for a good christie.

A useful exercise for students not yet ready for parallel is to stem the outside ski into a wedge to help the initiation. As the pole is planted, extend the legs and transfer weight to the outside ski.

- As pressure increases and balance over the outside ski is adjusted, the inside ski can be gradually matched.
- Progress by matching skis earlier and encourage narrower track in the snow.
- Build up speed and demonstrate effect of good angulation.

Exercises for skill development

Stem turns can also be used to focus attention on key technical skills. Use stem turns to:

- Establish early edge and angulation.
- Establish correct timing of pole plant and extension.
- Establish correct upper/lower body separation for a good christie phase.
- Teach your student how to establish a platform to initiate a turn.
- Overcome difficult snow conditions (heavy snow, deep snow, etc.).

Versatility

Use the stemming movement to teach a variety of technical skills as well as to give your student a useful tool to manage any situation. Stem turns build confidence and skills.

Javelin Turn

The Javelin Turn is a great exercise to challenge better students and to develop balance and good stance. Lift the inside ski and point the tip to the outside of the turn.

Stop Christie

A stem can be used to initiate a Stop Christie. It is a useful safety skill as well as a teaching tool for pivoting and edging.

Powerplow

This exercise is a fun way to challenge students to isolate edging movements from turning ones. Powerplow is a strongly edged snowplow turn that focuses on angulation and steering, by alternatively edge one ski and then the other, to form a sharp track in the snow with no skidding.

The wedge position provides stability and students are able to feel the ski carving and pushing back at a slow speed. Best on gentle terrain.

BASIC PARALLEL PHASE

The students

At this level, students are able to make parallel turns on smooth, intermediate slopes. They are often quite static and lack confidence, especially on steeper slopes (Blue).

Environment

Blue and green slopes with small rolls and undulations, and black groomed slopes.

Goals

- To leave stemming stage and ski parallel.
- To develop rhythm.
- To learn use of ski poles.
- To link turns.
- To further develop stability and control through steering.

INTRODUCTION TO BUMPS

The students

- Apprehensive in bumpy terrain.
- Start turns with stem.
- Stiff in appearance.

The environment

- Blue runs with small bumps.
- Green runs with small bumps.
- Shallow terrain with well-spaced small bumps.

Goals

- To introduce a keen awareness of terrain and to use it to the skier's advantage.
- Route-finding.
- To have terrain assist turning.
- To demonstrate better fore/aft and lateral balance.

Skills

- Stance and balance.
- Pivoting (steering).
- Edging.
- Pressure control.
- Timing and coordination.

Plan

- Increase mobility.
- Use one bump at a time. Show ease of pivoting on crest of bump with tails and tips relatively free of friction.
- Show how to initiate turn on bump. Face new direction, plant pole just before crest of bump, slightly extend, turn legs, and gradually apply steering effort.
- Learn turn initiation with relationship to terrain.
- Develop ways to read the terrain.
- Develop pole plant timing.

FIRST TURNS IN BUMPS

Introducing skiers to bumpy terrain promotes a sense of awareness to terrain variations and offers an additional facet to the students' repertoire of skiing ability. Although the same skiing mechanics are employed, skiing bumps calls for an adjusted use of skills, relative to skiing ability.

Route finding

When first introduced to bumps, students should be able to ski in the bumps without first learning new techniques. The first goal is to learn how to safely negotiate the terrain within their comfort level. A good path through the bumps is an important key to learning how to enjoy them. Use your experience to lead your students on an easy, safe route.

Challenge the terrain

As speed and terrain increases, new techniques for skiing on the tops and hollows of the bumps can be introduced. Learning how to time movements, and attention to pressure control will allow students to enjoy skiing in all but the most challenging bump terrain.

ADVANCED SKIING

The students

These skiers have surpassed the Intermediate stage and are able to ski faster, ski parallel on steeper slopes, and seldom stem. They are able to ski some challenging conditions but tend to lose control and confidence when the speed increases.

The environment

Moderately challenging terrain and conditions, and difficult terrain under good conditions would be suitable for advanced skiers.

Goals

- To improve ski performance and capture some of the energy in ski turns.
- To ski rhythmical, linked turns in the fall line.
- To develop leg independence and improve balance.
- To confidently ski bumpy terrain of moderate difficulty.
- To increase speed.

Skills

- Edging.
- Pressure Control.
- Pivoting.

Plan

Try dividing a turn into three phases:

1- Completion to neutral, 2- Neutral to fall-line, 3- Fall-line to completion.

Alternatively, focus on the main skills; pivoting, edging, and pressure control (especially edging).

Try to view everything under the umbrella of Stance & balance and Timing & coordination.

Advanced skiing lessons include:

- Shorter, rhythmical turns.
- Skiing varied terrain.
- Faster skiing.
- Different turn shapes.

ADVANCED BUMPS

The students

- Good parallel skier.
- Lacks timing in bumpy terrain.
- Gets thrown around by challenging terrain.
- Has balancing problems.

Environment

- Blue bump slopes.
- Black bump slopes.
- Difficult snow conditions.

Goals

- Route-finding (line).
- To be able to adjust to terrain.
- To ski faster.
- To develop better steering.

Skills

- Stance & Balance.
- Edging.
- Pressure Control.
- Timing & Coordination.

Plan

- Increase speed.
- Perform long and short turns on varied terrain.
- Work on steering ability.
- Rhythmical skiing and route-finding.

EXPERT SKIING

The students

These skiers have the ability to ski all but the most difficult terrain and conditions. While they might have strong technical elements in their skiing, improvement will still be possible in the way of ski performance, agility, adaptability, or fluidity.

Environment

- All conditions and slopes.

Goals

- To improve linking of parallel turns at high speeds.
- To capture as much ski performance as possible.
- To blend movements in harmony with line, speed and slope.
- To ski aggressive turns on all terrain and conditions.
- To utilize ski performance and rebound to maintain rhythm.
- To demonstrate reliable edge-grip on icy slopes.
- To demonstrate independent leg action.

Skills

- Edging.
- Pressure Control.
- Timing & Coordination.

Plan

Students who are at the expert skiing stage need to refine their skills rather than learn new ones. For example, they may need subtle adjustments to timing and coordination to improve. They must broaden their range of experience and be challenged in the widest variety of situations possible. Set goals or use themes to focus attention on different aspects of skiing.

For example:

- Set a goal of making large round turns on a bumpy slope, then try to do it again at a higher speed. Focus: choosing line, quiet upper body.
- Set a goal of maintaining a constant speed down a steep groomed slope.
- Set a goal of making the thinnest tracks possible. Focus on early edging.

Because the range of possibilities is wide open at this stage, it is impossible to define an “expert” lesson plan.

EXPERT BUMPS

The students

- Aggressive skier.
- Ski all conditions.
- Inconsistent turns on difficult terrain.

Environment

- Black runs with bumps.
- Variable snow conditions.
- Blue runs with bumps.

Goals

- To ski safely at high speed in the bumps.
- To use a variety of mechanics in the same run.
- To adapt mechanics to the needs of the terrain.
- To be consistent and controlled in challenging conditions.

Skills

- Stance & Balance.
- Pressure Control.
- Edging.
- Timing and Coordination.

Plan

- Use all parts of the bump to turn.
- Make large turns on Blue bump runs.
- Ski progressively faster on the same line.
- Vary the route during the run.
- Vary turn shape during the run.

ADVANCED DRILLS AND EXERCISES

To challenge better students and further refine their skills, it may be necessary to prescribe more difficult exercises.

Short radius symmetry drill

The drill shown at left uses soft “stubbies” to define a straight line down the hill. The skier uses the markers to establish a consistent pace down the slope. Increase the steepness or change the spacing between markers to vary the difficulty. This drill takes some setup but it is an excellent test of speed control, symmetry, and turn shape. Use it to refine many of the expert skills.

Balance exercise

This drill looks deceptively easy. It is an excellent way to improve balance in all modes. The object of the exercise is to complete parallel turns on the outside ski only. This balance exercise is one of the most effective ways to improve stance in advanced skiers.

Single ski turn

This drill requires strong legs and a sound technical base. Remove one ski, and on groomed terrain attempt to make rhythmic turns. Short turns are easier. Switch legs frequently to avoid too much fatigue. Once muscles are exhausted, motor pattern learning is impaired.

Alternating inside ski turns

A variation of the Single Ski Turn is this exercises sometimes called the “Charleston” or “Texas two-step”. Quickly switch from one inside ski to the other to make short, rhythmic turns on a groomed slope. It is challenging and fun!

CARVING FOR FUN

Modern skis perform well but some skis are made especially for carving. They are shorter, have more shape, and usually have raised bindings to prevent the boots from touching the snow at high edge angles. Otherwise the basic principles of good technique apply.

Parallel leg movement

One of the keys to carving is being able to achieve extreme edge angles with both skis. Both legs should incline inward at the same angle. Practice parallel leg movement on gentle terrain by making in-line skate turns. Put hands on knees to reinforce the movement of both legs equally.

Note: skis that carve go faster than skidding skis. Speed is part of the fun but practice on gentle, groomed slopes first. Expert carvers look for groomed, uncrowded slopes and stay well clear of natural obstacles such as trees.

SKIING UNGROOMED CONDITIONS

Many resorts today include ungroomed alpine terrain that provides a new source of challenge to many skiers. In some cases fresh snowfall can cause all runs of a ski resort to resemble "off-piste" conditions. Being able to ski a wide variety of conditions is the mark of a true professional and every instructor should aspire to be competent in skiing and teaching in ungroomed snow. Off-piste conditions can be more varied than fresh powder or typical groomed ski resort runs.

They include:

- Wind or ice crust.
- Bottomless powder.
- Terrain hazards (rocks, trees, creeks, chutes, etc.).
- Cut-up snow from other skiers.
- Heavy wet snow.

The most common errors in ungroomed ski conditions are:

- Sitting down or back.
- Weighting the skis unequally.
- Flexing the joints unequally.
- Lack of rhythm, traversing instead of turning.
- Improper speed (too fast or too slow).
- Rotating with upper body.

Modern equipment makes skiing easier than ever but ungroomed snow challenges even experienced skiers if they are unfamiliar with such conditions. One of the instructor's primary goals is to build confidence in the student because many challenging conditions require commitment. Commitment is much easier once apprehension is overcome.

Balance

Increased attention to balance may be required for many challenging snow conditions, and new ways of balancing may be necessary for deep snow conditions where the skis are not on a firm surface.

TIPS FOR DEEP SNOW

Encourage a fairly narrow stance. A wide stance essentially creates two bases of support that risk causing the skis to wander. Paradoxically, lateral balance is more difficult with a wide stance in soft snow, whereas just the opposite is true on hard snow. Always strive for a centered stance. In deep snow the skis want to plane to the surface, and resistance of the snow around the boots tends to slow the feet. As a result a centered stance may appear to be slightly back. The diagram illustrates this phenomenon.

Familiarity

Introduce this concept by traversing or descending gentle slopes in appropriate snow. Focus attention on feeling the feet being centered on the footbeds. Hold arms away from the body for better balance. Make gentle up and down movements to gain familiarity with the springy

sensation of bottomless snow and to further enhance balance. Mobility is one of the keys to relaxation, less fatigue, and better balance. Slight turns up the hill may be introduced by combining movement with rolling the ankles and knees into the hill.

Balance tips for difficult snow

Difficult snow includes various types of crust that may be on the surface or embedded under the surface, or conditions such as wet snow, inconsistent snow or frozen conditions. Encourage a lower, defensive "stance of readiness" to avoid falling.

Movements

Many technical tricks may be used to overcome off-piste conditions. The following teaching tips should provide enough ideas to prepare any teacher for ungroomed snow.

Teaching tips for deep snow (parallel skiers)

Familiarize by traversing or descending gentle terrain. Bounce by moving all the joints to sense the snow and gain confidence. Do not attempt parallel turns at slow speed. A small increase in speed makes turning much easier. Make turns rhythmical and close to the fall line. Encourage turning with the lower body. Encourage a narrow stance. Note that if weight is centered, skis tend to bend as they plane upwards in deep snow. Refer to the diagram on page 3.41. When bending skis are edged they will "carve" through the snow in much the same way as skis carve on groomed terrain.

Teaching tips for deep snow (cautious or intermediate skiers)

Use a deliberate stem to establish a new direction and platform. Deep snow has a slowing effect. Establish the turn shape by demonstration but ensure that the student does not ski in your track, as it may cause too much speed.

Teaching tips for difficult conditions

- Traverse and kick-turn if necessary to descend through unsafe conditions.
- Move slowly and use stem turns as often as necessary.
- In heavy snow or crusty conditions, use strong up movements and pivoting to change direction. If the crust is thin, it may be helpful to keep the skis under the snow and turn with strong steering movements, breaking the crust with the boots. Link turns in a rhythmic fashion and stay as close to the fall line as slope permits.
- If possible, use diagonal sideslip to teach a balanced ready stance as well as to lose elevation.

TERRAIN PARKS – FUN WITH SAFETY

Terrain parks can be found at almost all ski resorts. They include half-pipes (large semi-circular trenches) and other machine-made terrain features such as jumps and banked turns. Modern ski equipment has enabled a new breed of athletic skiers to enjoy the terrain features in much the same way that snowboarders do. Terrain parks promise benefits in skill development and sheer fun for developing skiers. Instructors should be aware of the potential of terrain parks to add value to lessons and know how to introduce the new features safely.

A guideline to terrain park and halfpipe use

- Terrain parks and their jumps are divided into ability groups.
 - Green: easy.
 - Blue: more difficult.
 - Black: difficult.
 - Double black diamond: for expert only.

Always use the features that are within your student's ability level.

- The Green, Blue or Black designations apply to a particular run; use them as such. Never cross over and go from hit to hit.
- If you stop, do so in a place out of harm's way, never under a jump, never hidden from above and not in the take-off and landing zone of any feature.
- Always use a spotter to ensure the group's safety. Someone who can see the landing zone and the inrun must be posted below jumps.
- When travelling through a park never traverse landings, inruns or take-offs; the park is made for fall line runs.
- Always enter a park from the designated entrance, never duck under ropes or enter through the trees.

By choosing the line carefully, it is possible to provide a fun and challenging run through the park for all ability levels. If possible, do not stop with the class while in the park unless a safe area is clearly available.

JUMPING

Jumps can be done off the halfpipe wall or off the many features of the park. Jumping provides a thrill for some students and is a good way to develop balance and agility. Use judgment before asking students to jump. The place to start is on a small jump that provides a steep, prepared landing area.

- Provide enough speed to land in the landing zone.
- Stress a balanced position for take-off. Hold hands forward.
- Do not attempt to jump farther by springing off the take-off area. Use more speed to jump further.

Safety tips

- Only one person at a time on the jumps.
- Before you jump, let others know you are jumping by saying, "dropping" or "next" to avoid confusion. With a class, use clear signals to ensure each student starts when it is safe.
- The jumps change daily, therefore inspect the features with a slow run before using them.

360'S - HOW TO GET THEM RIGHT

Short skis and well-groomed jumping areas make 360's one of the easiest "tricks." As with any trick, use judgment before attempting with students. Refer to ski school policies before attempting any unusual manoeuvre on skis.

- In preparation for take-off, look for the landing spot as you plant your pole in the direction of your planned rotation. Next follow this with a jump or "pop" of the legs. This extension is done on the lip of the jump to help achieve greater height and increase the amount of time spent in the air so the 360° rotation can be completed.
- Look for the landing in the direction of your planned rotation. To increase rotation wrap your arms in tight, to slow rotation keep your hands further away from your body.
- During flight and rotation keep looking for the landing you spotted upon take off.
- Once the rotation of your 360 is about to be complete, open your arms to stop the rotation.
- Prepare to land with your hands forward and legs slightly bent to absorb the shock of landing.

Terrain parks can provide a new element of excitement and adventure for skiers of all abilities. As an instructor you can take advantage of the challenges and fun offered by such ski resort facilities. The keys to success when venturing into a terrain park are:

- Know the features of the park in advance.
- Know area and ski school policies.
- Know the abilities of your students.

Then play safe and have fun!

Chapter 4: CANADIAN SKI TEACHING

INTRODUCTION

People take ski lessons for improvement and enjoyment. The ultimate goal is to create and retain skiers by giving them access to and awareness of the alpine environment. An effective instructor has a way of delivering a positive guest experience, and a method of work that is technically sound and result oriented. The technical components of the CSIA are solid analytical and development tools, but understanding people is as important as technical understanding.

DEVELOPING GUEST EXPERIENCE

1. Technique and skill development
2. Guest service
3. Student centered teaching

Effective ski teaching combines technical knowledge with a student-centered method while creating a memorable guest experience. The result is fun and informative.

In the same way that skiing skills can be practiced and developed, teaching skills can be learned. By looking at the 3 components of ski teaching, instructors can identify areas for development as ski professionals.

Recipe for good ski teaching

- **Active and Fun:** learning to ski is fun and students should ski as much during the lesson as they would on their own.
- **Technically based but simple:** the skills system and technical knowledge should keep teaching simple, creative and fun.
- **Student centered/result oriented:** achieve results for the student by basing teaching decisions on their needs.
- **Tactical:** adjust the lesson to the conditions and terrain and use these situations as teaching/learning tools.

DEVELOPING THE GUEST SERVICE

Snow Schools exist within the context of a larger industry picture. Ski areas wish to attract and retain customers. The ski experience must represent value to the buyers and ski instruction can be a valuable part of this. Although instructors do not come in contact with all the skiers on the mountain, they spend substantial amounts of time with those that they do see. They also have the unique opportunity to create lifelong participants in the sport by teaching beginners and children.

Ski teaching is mostly about people. Putting clients at ease, catering to their desires and delivering a memorable mountain experience means success as a ski teacher. Technical proficiency and a student-centered methodology are also needed, but are only useful if the message is accessible to the client.

Recipe for developing the guest service

- Introduce yourself.
- Learn names and background of students.
- Explain your objectives.
- Ask their expectations.
- Taylor your session around what you have learned in the introductions.
- Warm-up.
- Evaluate – in terms of technique, fitness and mental state.
- Teach for results by being student centered.
- Finish on a positive note.
- Individual wrap-up, establishing goals for the next lesson.
- Hand shake and good-bye.

PRO-ACTIVE... Client Building

- Use lift time to communicate with your students.
- End the lesson on a positive note, with 'feel-good' terrain and encouragement.
The student should leave with a sense of accomplishment.
- Keep track of time and end the class at a pre-arranged spot or at the bottom of the hill.
- Leave time to summarize the lesson, thank the student and give a few encouraging words.
Be clear on what they should be working on and suggest terrain for them to ski.
- Children must be returned to the care of a parent or responsible adult. Take the time to speak with the parents.
- Shake hands and give a business card to create return business.

1. Choose your attitude

Your ability to engage your clients will have much to do with your success. Make them want to try new things, to try again, free ski, and anticipate their next lesson. Infect them with your own enthusiasm for the sport. A positive attitude makes the lesson more rewarding for both teacher and student.

2. Make it fun

Try these ways to motivate your students and yourself:

- Set achievable goals to ensure success.
- Keep them moving and interested to avoid boredom and impatience.
- Use tasteful humour.
- Use positive feedback. Tell the students what they did right and motivate with "good job, keep up the good work, you're doing better, I have faith in you...".
- Enthusiasm is contagious so let yours show.
- Common sense avoids situations that are frightening embarrassing, or dangerous.

3. Share an experience

Remember your place in the skiing environment, and open the client's eyes to the skiing experience. Things that may seem commonplace are unique if you take the time to enjoy and share them with your clients. Some ideas:

- Natural history/local interest.
- Environment and weather.
- Ski area history and operations.

4. Be there for the guest

Even if dealing with other preoccupations, take the time to enjoy your working environment and the people you are with. Each interaction is unique and memorable for you and your client.

People skills and communication

Ski teaching is partly technical ability and mostly communication. Beyond teaching situations, ski instructors communicate daily with clients and area staff. Other opportunities can evolve through ski school sessions, ski week groups, special groups and functions, and certification courses. While these situations can be challenging, confidence as a communicator can be learned.

Make people feel important:

- Use their name.
- Identify what they want – this won't necessarily be what you want.
- People are primarily interested in themselves ; involve them and tell them how they will benefit.
- Thank people by name, look at them and be sincere.

Be an agreeable listener:

- Smile - set the tone for the relationship. Smiling relaxes people and makes them more receptive.
- Look at the person who is talking and listen intently.
- Don't interrupt.
- Refrain from arguing, the poorest technique in human relations.
- Admit it if you are wrong.

Use kind words and compliments:

- Ask questions that are easy to answer positively.
- Be sincere and specific in your praise.
- Praise the performance not the person.
- Criticism should begin and end with a kind word or compliment.

Show pride and enthusiasm for what you do:

- People respect those who progress on their own merits and not at the expense of others.
- Sharing your passion for skiing is the best way to create skiers.

Be proactive:

- Good actions prevent disagreement or unhappiness.

PRO-ACTIVE... Communication

- Involve the class in your decision-making.
- Involve the whole class in observing and giving feedback so they also learn from others.
- Ask questions that help them discover solutions.
- Give cues and key words to students as they ski as technical reminders.
- When skiing as a group, alternate followers and lift ride combinations.
- Too much feedback can be an obstacle to learning. The student needs time to absorb and integrate information.
- Give instructions to small children at eye level.

Speaking and body language

The voice is the medium of the message, and an asset in any contact with others. Your voice reflects your state of mind and character. Develop a voice that is:

- Pleasant and warm.

- Natural and sincere.
- Dynamic, with strength and conviction.
- Expressive, conveying emotion and shades of meaning.
- Easily heard, loud enough.

Mumbling, speaking in too high a pitch, failure to enunciate, and talking too fast can all be improved through preparation, breathing slowly and practice. Public speaking courses are a good source of ideas for improving technique, and there is no substitute for knowing your material.

While speaking, a large amount of communicating is done by gestures and physical behavior. A message can be strengthened or weakened by body language.

- Use gestures to create focus and to punctuate the delivery. Unnecessary movements can be distracting and unsettle the audience.
- A pleasant, smiling expression creates a relaxed, receptive mood for the listener.
- Eye contact expresses interest, sincerity, honesty and confidence. As powerful as the voice, eye contact establishes a bond and tells the speaker if the audience is understanding and interested.

STUDENT CENTERED TEACHING

Student Centered methodology is based on the lecture presented by the CSIA at Interski 1991 in St. Anton, Austria. It moves away from the traditional step-by-step progressions and recognizes the many environmental and human variables in ski teaching. The main goal is to get results for the students and each skier has different needs, goals and way of learning. Similarly, ski technique must be adapted to the variables of conditions, terrain, speed, and turn shape.

Student Centered Teaching recognizes that:

- Students should have fun, meet with success and live many experiences.
- Skiing is a decision-making sport.
- There are no right or wrong decisions - only consequences that must be recognized and dealt with.
- The goal of skiing is not to reproduce a movement, but to create a result.

In an ever-changing skiing environment where the needs of each student are different, there are no convenient templates that will work in all situations. There is no right or wrong approach, only consequences to the instructor's decisions. Instructors need a global understanding of skiing and situations to adjust to any variables and make appropriate decisions throughout the lesson.

Decision-making and lesson planning

The task of adjusting to individual students in the changing skiing environment requires decision-making. The factors that influence the instructor's decisions are:

- Student ability and goals.
- Terrain and conditions.
- Skill development needs.
- Choice and use of tactics.
- Evaluation of performance.
- The integration of the tasks into the students' skiing.

These steps can be seen as a linear lesson plan, or simply factors that must be considered throughout the lesson.

PRO-ACTIVE... Lesson planning (“6 steps”)

- Assess your student.
- Know your terrain.
- Look at skills.
- Assign achievable goals.
- Develop strategies.
- Guided mileage for skill development.

Developing a teaching approach

Any approach that involves the student, appeals to the senses, uses examples and experimentation, and promotes sensory feedback, will have the most chance of success. The focus of the lesson evolves around terrain changes and the student’s ability in a given situation. Developing the right movements and linking them to feelings, yields positive and long-lasting learning.

How people learn

People have different ways of learning. Recognizing and adjusting to the dominant learning style of each student will increase success in lessons. Know your own learning style, as one tends to teach the way they learn. Learning styles are often combined, and will change as the learner acquires skill.

Open and Closed Skill Sports

Generally sports can be classified into open skilled or closed skilled. This classification system examines motor skills according to the stability of the environment, and the goal of the movements.

Sports can vary in the degree to which they are classified as open or closed. In a typical closed skill sport, athletes use repeated movements that are generally controlled in space, and direct their training towards acquiring as much regularity as possible in the execution of a motor movement. There is no decision as to what skill has to be done, and no anticipation is needed for changing situations. There are no possibilities to compensate for weak elements in the technique. In closed skill sports the participant is often judged by their ability to produce a motor pattern that has a defined standard.

In a typical open skill sport, the environment is constantly changing, and requires continual adaptation by the athlete. As there is no single proper way to respond to the environmental requirements, a fixed pattern does not necessarily lead to the goal nor does it ensure success. Technical weaknesses in the execution of a movement can be compensated by the execution of

another more efficient movement elsewhere in the sequence. In an open skilled sport the movement is a means to an end, and how the objective is achieved is not important. This is the recognition that there is no right or wrong; only consequences.

Teaching implications for skiing

Teaching an open skilled sport like skiing means developing the athlete's technical ability and their ability to choose the right response for the situation. The instructor must offer skiing conditions adapted to his student's level of development. The student is presented with tasks and challenges, yet the solution must be within their grasp. A competent instructor chooses strategies that correspond to the skier's abilities and the situation.

TECHNIQUE AND SKILL DEVELOPMENT

The concept of Skill Development is the technical base for CSIA methodology. In recognizing skiing as an open skilled sport, maneuvers are set aside in favor of a skill development approach. Skiing is analyzed as a set of components (skills) that are blended to adapt to all the variables that a skier can encounter. This approach works well for any student type, development level or age group and is well suited to the large numbers of non-elite students of all ages found in typical ski schools.

The five skiing skills are the common denominators of any skiing:

- Stance & Balance.
- Pivoting.
- Edging.
- Pressure Control.
- Timing & Coordination.

Understanding these skills, how they inter-relate, and their application in various situations and ability levels gives an instructor a tool for analysis and development.

An effective teacher assesses the skill level of the student, identifies weak areas, and improves skiing through drills, exercises, and situations that challenge and strengthen the student's skiing skills. Skiers learn appropriate skills and how to apply them to situations rather than learning a series of fixed steps.

PRO-ACTIVE... Technical Knowledge

Apply your technical knowledge to the needs of your students.

- Assessment: where is the student in their skill development?
- Lesson plan: what should the student be working on?
- Development: how can the student achieve the next stage?

Skill development is situational as well as student-oriented, and lets the instructor be creative in developing the skills of his student. Skill development applies to any type of terrain and snow condition.

Skill development also implies that as skiers learn at a basic level, they are learning mechanics and principles that will also apply to their later development. The training of muscle involvement and sensory feedback is the core of development. Each step is a building block for the stages that follow.

CSIA's technique and skill system are fully explained in chapter 2 of this manual.

SITUATIONAL TEACHING

Success in a lesson is measured by creating a positive experience for the student. This is based on communication, developing trust, and a systematic application of the instructor's technical knowledge to the situation.

Recipe for results

Improvement and participation in the sport of skiing is created by combining people skills, technical knowledge and good methodology.

- **Understanding:** what are the skills and how are they inter-related? How are skills adjusted in various situations? How can ski technique help the sensory aspect of skiing?
- **Method:** class organization, the use of individual goals, how to develop themes and ideas, how to adjust the approach in varying circumstances.
- **People Skills:** what are the student's needs? How can we create a fun and memorable experience? Is communication effective and two-way?

Method + Understanding + People Skills = Results

Lesson types

In all lessons the client must be happy with the results. Clients must feel that their money was well spent and that they achieved something. Different lesson types demand different approaches. Students expect to have their needs met, so find out what these are.

Practical ski teaching

Students not only learn at different rates but the approach that works for one may get no results at all with the next. Variety in lesson approaches gives fresh insight and better results.

PRO-ACTIVE... Safety

Your first concern is the safety of your clients. Common sense and mountain awareness can avoid problems. Know the safety rules and accident reporting policy of your area.

- Advise on the right clothing for the day's weather.
- Warm-up for readiness.
- Ensure that your students are familiar with the lift you will use.
- Look for safe stopping areas, tucked away from traffic. Keep moving in high traffic areas, below knolls, and on narrow trails.
- Have students stop below and plan stops so there is room to avoid collisions.
- Alert your students to traffic and terrain changes.
- Create awareness for ski area hazards and signage.
- Educate about eye protection, skin protection, and care of equipment.
- Having students follow can be a safety and confidence booster in tough situations.

PRO-ACTIVE... Explanations

The student needs a clear introduction to the task at hand:

- Short and clear.
- Interesting and accurate.
- Directed to each individual in the group.
- Replace technical jargon with analogies and simple language.

PRO-ACTIVE... Terrain

Terrain can determine the success of a lesson. Choosing good terrain and using it well speeds progress and increases enjoyment.

Know your terrain:

- Know the contours and safe zones.

Use it well:

- Is the class positioned safely and in view?
- Are the conditions and steepness appropriate for skill level?
- Use slope contours and fall-line to assist the task.

PRO-ACTIVE... Demonstrations

Demos must be adapted to students and situations. Always consider speed, terrain and turn shape and tell the class what to look for before you ski off to demonstrate.

- Imitate the right moves while standing to discover new ways of moving and balancing.
- Show various angles and pre-demos.
- Orient your body language to make sense to the student.
- Adjust your approach to their equipment.
- Talk while skiing towards the class.
- Let your students see your movements and choice of line, especially in mountain terrain.

PRO-ACTIVE... Skill Assessment

Setting accurate objectives for students and assessing performance relative to these goals is the heart of ski improvement through skill acquisition. Evaluating skills accurately sets the stage for improvement:

- Prioritize skills, and look at one or two at a time.
- Choose a skill that is good for snow conditions and terrain.
- Skills are blended, and improving one will help the others.

PRO-ACTIVE... Development Tactics

Seeing tangible results in the student's skiing gives the instructor confidence that they are working in the right direction. If something is working, stay with it, but lack of improvement means re-evaluating your approach. A teaching tactic can be an exercise, or as simple as a change of speed, terrain or turn shape.

- Choose tactics that are related to your skill assessment.
- If a tactic works, repeat it and build on it.
- Match tactics to terrain.
- Use situations encountered on the mountain as teaching tools.

PRO-ACTIVE... Feedback

A pleasant, positive, enthusiastic approach will have positive effects on your students and reflect your part in a service industry. Feedback should support successes. Building on positive experiences will create smiles and avoid apprehension and discouragement:

Be understandable and concise:

- Use simple language and words.
- Replace technical explanation with analogies.

Be specific:

- Specify parts of the body or turn.
- Use reference points like tracks in the snow or sensations.

Be directive:

- Explain the benefits of a particular approach.
- Focus on one task at a time.

Be positive:

- Emphasize what to do, not what to avoid.
- Encourage the student.

PRO-ACTIVE... Confidence building

Your job is to put clients at ease and reduce frustrations during the learning process:

- See the experience from the client's perspective and evaluate your choice of terrain and tactics.

- Don't push people to do more than they want.
- Be alert for those who are tired, frustrated or embarrassed.

PRO-ACTIVE... Class Control

- Gather students around you to avoid formal line ups.
- Tell the class what is happening and what to expect.
- Think ahead. Plan your stops around terrain changes and tactical needs.
- Avoid distractions like snowmaking, stopping under chairs, near loud equipment, race courses etc.
- Keep track of your students. Know where everyone is and count often.
- Space out your students for safety and so they learn to see the terrain for themselves.
- Know lift-cutting policies and always be courteous. Use extra caution when riding lifts with children.

PRO-ACTIVE... Mileage and practice

Build practice time into your lesson with lots of skiing:

- Try long sequences of turns if terrain and ability level permit.
- Have students follow only if the terrain or task warrants. Following is only effective for the students closest to you.
- Let others practice while you help one student.
- Ski beside and behind students if terrain and safety allow. Encourage and coach.
- Play 'leapfrog' down the hill to let them discover their independence.
It will keep the class moving and let them watch skiing from different angles.

Manage time so that you can take a couple of minutes to conclude the lesson in a personal way without abandoning the student as you rush off to the next lesson. Make an encouraging review of progress and some suggestions for the rest of the day.

Practical experience and training are the best ways to improve these areas. Learn some basic teaching methods that work and develop your own teaching style around these. Develop the guest experience with a student centered approach and a sound technical base.

Chapter 5: TEACHING CHILDREN

INTRODUCTION - YOUTH IN SPORT

Teaching children can be one of the most challenging, rewarding and satisfying experiences of being a ski instructor. We are introducing children to a sport they can enjoy for a lifetime. To achieve this goal, every instructor needs to know how to create successful learning environments for youngsters of all ages. Children are an important part of today's ski school business and a vital component of the ski industry for the future. This chapter can only serve as an introduction to one of the most important roles of the ski instructor.

To create a successful learning environment for children, it is important for the ski instructor to be aware that children have mental structures that are different from those of adults. Children are not miniature adults. They have their own distinct ways of viewing reality and the world. All children develop mentally through a fixed sequence of stages but the age at which children move from one stage to another may vary. Unlike adults, children are in a state of constant physiological development. An adult may re-learn or transfer skills from other sports whereas a child will probably be experiencing skill development for the first time. A ski instructor who is aware of the mental and physical characteristics of children can develop an effective lesson plan based on his understanding of those characteristics.

This section will cover the basics needed to prepare the ski instructor for a successful lesson with a class of children.

It is the instructor's goal to:

- Stimulate the imagination by using themes and animation.
- Communicate effectively by understanding the child's stage of mental development.
- Ensure that the learning environment is safe and enjoyable.

SPECIAL RESPONSIBILITIES FOR INSTRUCTORS

The Safety Awareness section in Chapter 1 of this manual draws attention to some of the special responsibilities imposed on anyone charged with the care of children. Most ski schools and ski areas have clear policies outlining the duties and responsibilities of instructors with children. It is crucial that instructors be aware of these policies. (If policies are not clearly stated, the ski instructor should check with management and use common sense.) Extra consideration should be given to the following responsibilities:

- **Physical contact:** this is a sensitive issue. With today's awareness of sexual abuse, teaching children requires special care. Be clear on your employer's policies for escorting children to the washroom, dressing children, and touching them.
- **Use of lifts:** know the area policy regarding age and size restrictions for children riding lifts unsupervised. When there are not enough adults to assist with the children, you may be required to make judgment calls, such as recruiting the help of lift operators. Make sure the children understand that misbehavior will not be tolerated around lifts. Insist that the safety bar be down at all times.
- **Equipment:** take the care of a responsible parent in overseeing that children are dressed appropriately for the weather and the environment. Be sure they have adequate eye and skin protection. If your employer does not have policies on the use of

helmets and safety bindings, use your judgment in assessing the risk and recommending changes to parents.

- **Role modeling:** take every opportunity to reinforce the Skier's Responsibility Code on the slopes.

DUTY OF CARE

When you, as a ski instructor, agree to undertake the instruction of a person, whether that person is an adult or a child, you enter into a special relationship with that individual, out of which, the Court will impose upon you a Duty of Care for the safety of that student. This Duty of Care commences when you first meet your student at the start of the lesson, and does not end until the lesson is completed.

It is very important to bear in mind that, in the eyes of the law, your role as an instructor is not simply to educate your student on the finer points of skiing, but rather act as a knowledgeable, responsible and vigilant guide to the student while on the mountain. An instructor must teach in strict accordance with the Alpine Responsibility Code, and ensure that the students under his supervision are skiing in full compliance with the code, as well as understand the reasons for doing so. The instructor must exercise great judgment in selecting the terrain upon which the lesson will take place, to ensure that it is commensurate with the student's ability, and minimizes the risks arising from natural hazards.

The Courts will expect a greater duty of care with respect to children under your supervision; this duty increasing as the age and experience of the child decreases.

Courts in Canada have held that the Duty of Care owed by a person charged with the supervision of children, is that of the "careful or prudent parent." The instructor must be prepared to undertake the care and supervision of children under his or her responsibility in the same manner as would a "careful and prudent parent" in similar circumstances. It is therefore apparent that, especially with younger children, the actual instruction of downhill skiing may only be one element of the instructor's overall concerns. When dealing with children, the instructor will not have discharged his or her Duty of Care until such time as the child has been safely released into the care of another responsible adult, in accordance with the ski school's policies. All ski schools should have clear and comprehensive protocols dealing with the transfer of children between the parent or guardians, ski schools and instructors, and it is your obligation as instructor to be fully familiar with these policies.

The challenge of the ski instructor to fulfill this role is not an impossible one, but one that requires full-time diligence and thorough knowledge of:

- The ski resort policies.
- The ski school policies and facilities.
- A genuine concern for the well-being of the students.

FIRST STEPS

Meeting the Class

Children may be apprehensive when they are meeting you for the first time, especially if they are young or new to skiing. Take the time to get to know your students and to help the students get to know each other before the lesson begins. Here are some hints to make the introduction genial and effective.

- Use eye contact. That might require you to sit or kneel to get down to the level of the student(s). Remove any eye gear (sunglasses or goggles) that you might be wearing.
- Learn their names and make sure they learn your name. Learning names not only is important for safety, it also is a good way of beginning to develop group dynamics with older children and bonding between you and all age groups.
- Children sometimes enjoy giving and getting nicknames, but use discretion and sensitivity when using this approach.
- With older children (7+), you can play a name game.
- Smile!

Examples of name games

Toss: one person in the group tosses an object, a beanbag, a ball, a hat, etc., to another person in the group. The person who catches the object calls out his/her name. As the game progresses, the rules can be changed so that children call out each other's name.

Animal Add-on Name Game: each child in the group chooses an animal with the same first letter as the first letter or sound of his/her name. He says his/her name and tacks on the animal of choice, for example, "Jimmy the giraffe", or, "Susie the squirrel." The next child does the same, but has to repeat the title of the child who was first and tack on his own. The game continues, the list growing, until all the children have had a turn.

Choosing Meeting Places

Choosing a meeting place for children needs careful consideration. Meeting places should be identified by visible objects that are easily recognized by children, for example, a sign or a fence. Designate a waiting area away from the main flow of traffic, and, if possible, out of the wind and

in the sun. A meeting place should also be in a visible spot that both the instructor and other skiers can easily see. Typical directions to the students might be as follows:

“At the top of this lift there is an orange sign in the shape of a square. When you get off the lift, wait for me at the sign. John, you know where the sign is. You go first and make sure everyone else finds the sign.”

Stopping a Class

An important procedure for stopping a class safely is to prepare the children to stop by using a predetermined signal. Raise a hand or use a word. Children respond enthusiastically to these signals, especially if yelling is involved! Make sure you stop in an area away from traffic where students can easily be seen by skiers up-hill.

Another important procedure for stopping safely is to allow sufficient space for the manoeuvre. Children may have difficulty “stopping on a dime.” The “beyond/behind/below” method is an effective method of stopping a class safely: each child skis behind and just past (beyond) the person in front, and stops just below him. To teach the beyond/behind/below method, choose a flat spot and demonstrate the procedure. Move to a second spot and call the class to line up behind you. If this is not successful, the class should discuss the technique and try again until things work. This method of teaching helps children remember the correct procedure because they play a part in developing the strategy. This method works best with children over six years of age. Make it fun for the children to learn by turning it into a game. Children follow the instructor while skiing and line up correctly when stopping. As they fall into line, they either number off or call out their names. Those who “goof up” go to the back of the line. Carry on with the game while skiing and stopping and safe conduct will become a habit for the children. As an added bonus, the class will be organized and orderly.

Starting a class

Before heading down the slope, be sure that you have your students’ attention by using verbal and visual signals. For example, you might say, “Start your engines!” and accompany the verbal signal with a visual clue by putting your hands on your helmet/hat or giving the “thumbs up” sign. Children have prolific imaginations and will give you ideas if you encourage them to participate.

Moving a class

For the new instructor, moving a group of children around a ski area on a busy day can be terrifying. Safety is a major concern. Here are some helpful hints to keep children together.

- Count, count, count. Or better yet, have older children count themselves.
- Ask the children to pick a “buddy”, for example, someone who has the same eye colour. Each time the group stops, the instructor calls, “Buddies!” Children must find their buddies and raise their hand. This method is especially useful after an adventure through trees or a free run.

Choosing a buddy is also a good familiarization exercise as it forces children to look into each other's eyes.

- Assign an assistant to the instructor. The assistant can be referred to as a caboose or a ski helper. The job of assistant is to inform the instructor of any mishaps – tumbles, dropped poles, or collisions. This method can save instructors time and frustration. There is no fun in climbing 50 meters to retrieve a fallen child.

The following are ways to lead your class down the slope:

- The class follows one another in a single line or snake. The instructor can be positioned in the front, middle, end, or beside the line. If you are skiing on congested slopes, avoid the use of “snake” formations and try to be as noisy as possible. If other skiers hear you, they are less likely to hit you.
- Give the students a landmark to ski to (e.g. a sign on the side of the run). This method works well because the students have some freedom.
- The instructor skis in front, and the students follow making their own size of turns.

An instructor who manages his class efficiently can be more effective as a teacher. Knowing that the children are happy and secure allows the instructor to teach in a relaxed manner. Children are also more relaxed, willing, and ready to learn.

Class control

Getting children to co-operate in a class situation is easier if you understand the stages of emotional and social development of children. Apply these principles of development to organizing the children to achieve the best results.

Children ages 3 to 5 (pre-operations):

Ideally, these young children should be one-on-one with an instructor. They bond with the instructor and learn more effectively. In a group situation, children age five and under, are still egocentric, focused on themselves, and their play is either solitary (all by themselves) or parallel (side-by-side play with no real interaction).

- Even in a group situation, work with each child as an individual. Don't expect interactive play with these children.
- Activities should be things they can do alone (no partner or team games).
- With children who hit others, tell them that it hurts the other person when they do so, and try to make them understand by asking them: “How would you feel if you were hit?”. It takes until the next stage of development before they really understand that the other person feels the same pain.

- Use a similar approach with children who push ahead in the line, explain the waiting process to them and make them wait, but be patient!
- Never send these children anywhere alone, make sure they are accompanied by a responsible person.
- Allow time for “energy breaks” when they are tired.
- Be prepared to repeat a skill or a game as often as they need it; that’s how they learn.

Children ages 6 to 11 (concrete operations):

At this stage, the thinking and the social skills are beginning to change. You will notice that there are more arguments, and more insistence on being first or on being in some position of importance. Children are ready to begin to use rules in their play, but they have a modified view of the rules in the early stages: “It’s okay for me to break the rules, but not for you”. This behaviour changes even in this age category as children mature. They begin to have interactive play and an interest in pairing up with other children in the group.

To work within their scope of development, try some of the following means of class control:

- Provide lots of opportunities for children to find a buddy and work with him/her: games for two, partner activities, and skiing in pairs.
- Invite children to establish the rules, and make them stick to those rules.
- Sometimes a numbering system for kids helps to decide the order so that each one has a chance to be first. This works by assigning children a number, and alternating the order of numbers. On the first run, number 1 will be first, followed by the sequential order; next run, number 2 is first and number one is last. Children become good at keeping track of the order, and develop an awareness of fairness of the system. Numbering could be replaced by anything you can imagine that has sequential order: the colours of the rainbow, the months of the year, the days of the week, the letters of the alphabet, ect. Be creative!
- Teach children the Skier’s safety code. Get them involved in learning it and using it. Make it a game; reward a child who gives the right answer in an on-hill situation, with the opportunity of choosing a run. Insist on safety and following rules. This age group has a high drop-out rate from skiing, and they are easily frightened by a bad experience.
- Encourage children to get to know each other so that they can function as a group. Develop group dynamics with different activities: name games, partner activities, switching partners to ride the chair (including you, the instructor!), games on flat terrain, etc.
- For safety, make children stop by using the “Beyond, behind and below” method of stopping.

Using Lifts

The following are some ideas to help you with children when using chairlifts. Treat these guidelines as helpful hints, only after checking with your ski school for resort-specific rules governing riding the chair with children. Usually ski areas will have policies concerning getting children on and off the lifts, as well as asking for assistance from lift attendants or adults in the lift line.

Little children

Children who are not tall enough to sit down on the chair independently, are the only children who should be lifted on to the chair. Wrap one arm around the child's back, place the other arm on the ribcage closest to you and lift the child. Pull down the safety bar as soon as the child is seated securely on the chair.

Taller children

When children are tall enough to sit on the chair without lifting (i.e. their hips are higher than the level of the chair), the arm-under-arm technique works well. Practice with the child before you get into the lift line so that he/she is prepared well in advance.

The technique:

- Place your arm under the child's arm, and hold his hand firmly.
- Squeeze the child's arm and hand, and ask the child to squeeze your arm and hand.

This grip gives you a solid hold on the child, and allows you to assist him/her onto the chair. While you still have a firm grip on the child's arm, pull down the safety bar with your free hand. This method works well for nervous adults, too!

Confident children

Once the child becomes more confident using the arm-under-arm technique, teach him/her to grab hold of a bar on the chairlift or place one hand on the seat and sit down. Instead of holding the child's arm, place your arm across the child's waist with your palm facing back. This allows you to help the child fold at the waist, and push him into the seat if needed. With the palm of the hand facing backwards, you are prepared to grasp the child's body in an urgent situation. Continue to use this technique with bigger children until they are comfortable getting on and off the lift with no assistance. With young children whose hips are above the level of the seat, this method is useful as a safety measure for a long time. When the child is feeling competent getting on and off the chair without the security of your arm, he will let you know!

Riding poma lifts J-bars and T-bars with little children

When a child is not tall enough or strong enough to ride a surface lift independently, he/she will need the instructor's assistance:

- Place one of your skis between the child's skis so that your knee or shin becomes the platter or bar for the child.
- Hold the lift with the hand closest to the bar, and wrap the other arm across the child's chest like a seat belt.

Some other considerations

- Prepare children for their first time riding the lift in advance, by getting them to observe other people getting on the chair. Talk about the process.
- Make instructions short, simple, and clear.
- On the lifts are times children must be respectful and attentive to your rules and the resort's rules. Emphasize the fact that getting on/off and riding the chair is serious business, and it is not a time for careless behaviour.
- If you have a group of children, send them on the chairlift ahead of you.
- Make sure children know exactly where to wait for you at the top of the chairlift. Encourage them to clear the unloading area right away. Designate a visible and safe meeting place on top, removed from skiers getting off the chair.
- Prepare children for the possibility of a fall on the unloading ramp. Instruct them to get up as soon as possible, and move away from the unloading area. Tell them to ask for help if they need it.

What may seem obvious to you may not be obvious to a child. Take time to prepare for riding the lift. Repeat the instructions as often as needed, on every ride if needed, until children are comfortable and competent. And then still give reminders from time to time.

Carpet Stations

Using a stationery carpeted area to teach a group of young children, is a situation many ski areas resort to when a moving carpet is not available. It is useful when children have to be placed in group situations instead of one-on-one learning opportunities. The carpet is a good solution to ease the climbing process on a slippery hill. Large, well-developed children can usually manage to climb up and ski down a sufficient number of times, to learn to stop, and to turn in order to progress to a lift without tiring. But it is not the case for everyone. Even adults can use all their energy climbing, and not have sufficient stamina to ski for the duration of a beginner's lesson. So while a carpet is a solution to slippery slopes and other scheduling problems, be aware of its limitations and its affects on your skiers. Tiny tykes can use all their energy climbing and not have a lot left over to learn skiing.

Setting up

- Make sure the carpet area is cordoned off, and away from busy traffic.
- Start on a gentle slope with a flat run-off so that children who cannot stop on their own, will

not gather too much speed and stop on the flat.

- Place the carpet so that children can slide down each side of the carpet; it means less time standing in line waiting for a turn.

The progression

Straight Running in a wedge:

- Manually assist children to position their skis in a wedge. Point out what you are doing.
- Make sure the “catcher” at the bottom of the carpet is prepared to catch the child before you send him/her down.
- Assist the child to start sliding if needed.
- Catch the child at the bottom, and assist him/her (if needed) to climb up the carpet.

Turning and stopping

Once the child can control speed and stop using a wedge, encourage turning:

- Manually assist the child to turn one ski before sending him down. Explain (in only a few words) what to do.
- Progress to adding a target at the bottom of the slope (perhaps a pylon) or simply have the catcher call the child over to him/her so that he/she has to turn.
- Set up pylons or other markers. Demonstrate how to turn through the pylons (or other markers) and have the child try it.
- Create games, the same as the ones for on the ski slope; imaginative, with sound effects and no rules.
- Once children can stop progress to a steeper slope.

Catching the child

Catch the child by using an arm on the diagonal across the chest; the way a seatbelt in a car crosses the passenger’s chest. This is safe, effective and gentle.

Helpful hints

- Use as many helpers as there are. Assign assistants to catch children, to help them turn around at the bottom, and to get them back on the carpet. Often children (especially little children) need help climbing the carpet, especially at the beginning.
- Make sure an experienced or trained instructor starts the children at the top of the carpet, using manual manipulation and few words.
- Read section on physical and social-emotional development, so that you understand and use appropriate learning tools.
- Keep the focus simple; ask children to do only one thing at a time.
- Demonstrate for children; they also learn by seeing.
- Make the environment colourful and appealing.
- Once they are comfortable, encourage children to look ahead.

Include station teaching

On a slope that is long enough for children to gain much speed before they reach the bottom, position helpers/instructors at intervals on a slope. At each station, reinforce the skill that children

are working on. Catch children who cannot stop, reposition the skis in a wedge, and send them down another short distance to the next station.

Station teaching can be used with moving carpets too.

THE BASICS OF DEVELOPMENT IN CHILDREN

Swiss psychologist, Jean Piaget, has been the major figure responsible for a great surge of interest in cognitive development in the past few decades. His work has had a profound impact on contemporary developmental psychology.

Piaget has divided the mental (cognitive) development of children into roughly four stages. Although the age of onset of these stages varies somewhat, the order in which the stages occur appears to be fairly regular. In the ski environment, the children with whom we work (ages 2 1/2 to teens), span three of these four cognitive stages. Concrete operations which is the cognitive stage for children from approximately ages seven to eleven, has been broken down into two segments (ages five to seven, and eight to eleven) for the purposes of this manual to allow for a difference in social, emotional and physical development, even though the mental skills are the same.

Similarly, with physical development, the sequence in which children develop physical skills remains fairly constant. The time of acquisition varies considerably, and must be taken into account when grouping children for a ski lesson. Grouping children according to stage of development is more effective than grouping children according to age. The size of children can act as a rough indicator of their stage of development. The ski instructor can then plan physical activities that fit the developmental stages of the children.

Physical development also follows a predictable pattern even though the rate of development will vary from child to child. An instructor who is familiar with the pattern of development and a child's physical capabilities and limitations will understand why children ski the way they do and can adapt methods to work with the skills to develop them most effectively.

Muscular control and co-ordination does not develop evenly throughout our bodies. We gain motor control from the mid-line of our bodies to the extremities. The large muscles (legs, arms and trunk), develop ahead of the smaller muscles, hands and feet. With time and practice, the smaller muscles mature and the child performs increasingly complex motions requiring more and more precise coordination. The small muscles do not reach full maturity until adolescence. This means that small children can control the trunk and hip joint areas before the smaller joints in the arms and legs. Small children use large muscle groups to maintain and regain balance. Young children especially, are not capable of making subtle movements in their ankle joints to control fore/aft balance; they compensate by moving the trunk.

Neurological control develops from the head down to the feet. Children can control their trunks before their legs, hips before their knees, hands before their feet. Young children cannot perform movements with the upper part of the body that are different from the simultaneous movements

of the lower body; we say they have "no upper/lower body separation". The hands will often perform the action the child is trying to make his feet do.

The center of mass (COM) in a child's body is proportionally high until about age eight. The nervous system continues to develop throughout the preschool period. By age five, the brain has reached about 75 % of its adult weight, and only a year later, 90 %. Now add a helmet to this! Young skiers with a high COM will use a wide stance, a power wedge, or a wide-track parallel to stabilize this top-heavy body.

Because motor control and muscular strength are not well developed in the early stages, children use their bones and equipment rather than their muscles to support their frames. The lower joints are stacked one over the other resulting in a wide, straight-legged stance with the hips aligned over the heels and the back of the boot supporting some of the weight. The upper body bends forward from the waist to compensate for the COM being positioned behind the feet. When extra forces are put on the ski on steeper terrain and with more speed, the need to "lock" into this position in an effort to resist the forces is greater. This makes it more difficult for the child to learn appropriate balancing movements. By the approximate age of eight, children develop sufficient muscle strength for the instructor to begin encouraging a centered stance and increasingly refined motor skills.

Choice of terrain and speed are important factors in the development of skills. Children need to practice new movements on relatively easy terrain at an appropriate speed to allow progress. Once the new movements have been repeated and refined, they can practice on steeper terrain. The instructor can use this sequence as an effective built-in reward system.

Stance

Note the body proportions; large head made even larger with the addition of a helmet resulting in a high center of mass. The child is leaning on the back of the boots for support and there is more bend at the hip joint than in the ankles resulting in the hips being positioned behind the feet.

Beginning Skier

This beginning skier is focused on the feet. The feeling of making a wedge is a whole new sensation that requires concentration.

Lateral Movement

In the earliest stages, children lack muscle strength and fine motor control. They compensate by using the skeletal system to "stack the bones" giving them a stronger position on the skis. This lateral movement puts the ski on edge and assists with turning in the absence of refined ankle movement.

Rotation

Because they lack fine motor skills in the extremities, children achieve turning partly through the use of rotation.

A & D for children

The most important consideration in assessing and developing children's skiing, is understanding and applying the skill relative to the child's physical development. At each stage of development, the child is limited in acquisition of new skills by neurological and muscular development. Understanding a child's physical capabilities, allows you to adjust your expectations and teaching tools, to match the child's competencies. It is unrealistic, for example, to choose exercises/games to try to get the child in the pre-operational stage, to be centred on the skis when he/she is physically incapable of doing it. You will get better results by working within his limited scope of body movements. Once the child has matured physically (about age 6), it becomes a worthwhile goal to work on stance. Match the skill to the child's physical capabilities. The following are some common problems with beginning skiers, that will inhibit or prevent their development:

Crossed tips: manually assist the child to uncross the ski tips, and position the tips an ideal distance apart. Give the child a mental image to focus on (like carrying something between the tips). Or create an imaginative story like: "The ski tips are good friends and they like to be close together, but no kissing allowed!"

Knees rolled in: manually assist the child to open the knees, and, as with the crossed tips, create a picture or feeling for the child (like carrying a big balloon or basketball between the knees).

Large lead change in wedge: manually assist the child to bring the tips in line with each other. Cue the child, while skiing, to push ahead the ski that is lagging behind. This will probably require a means of naming the ski (e.g. a sticker), so that you can refer to the ski without using the words "left" and "right".

Tips too far apart: Sometimes a child who can ski an easy run, loses control on a more challenging hill because the ski tips are too far apart. It's usually an easy correction if you detect the problem, and help the child to bring the tips closer to each other; creating more of a wedge-shape.

All other issues for advancement and development need to follow the guidelines set out in the sections on physical development. These are the same five skills we use when teaching adults, but with kids, we want to make it more fun and less technical.

Pre-operational children:

- Work on balance and pivoting.
- Allow the stance to be back.

Concrete operations:

- Begin working on getting the stance centred.
- Introduce movement using the large joints.
- Add edging if the child is skiing parallel.
- Introduce some timing and co-ordination as the children show readiness (usually 9 to 11).

Read through the sections on physical development. Because children are not miniature adults, know when to work with each skill.

Tip Clip

Pictured here is a simple device to clip the tips of skis together. By securing the tips close to each other, a new skier can concentrate on pushing out the heels. The toes will automatically turn inward making it easier to form a wedge with the skis. It works because the fewer directions or skills a child has to focus on, the better the learning experience.

Teaching technique

With the clip on the tips of the child's skis, push the child's skis into a wedge shape. Ski backwards with the child until he/she feels comfortable using the wedge to control speed and brake. Encourage independence! Let the skier balance and steer as much as possible without interference. Resist the temptation to support the skier with your hands, or allow the skier to hang on to you. For security, hold the flat of your hands in the air like a brake pedal that is there for the skier to use by pushing on it with the flat of his/her hands (for emergency control only).

At first, the new skier will benefit from feeling the braking action of the skis in the wedge. By skiing backwards with him/her, you can maintain eye contact, reassure the child, and remind him/her when necessary, to brush out the heels (in the case of a young child 3 and under, use the word "feet" instead of heels).

Once the child can brake and turn with confidence with the clip attached, remove the clips for an easy part of the run. With each successive run, challenge the little skier on steeper parts of the terrain. Older children learn quickly using the tool, and the clip can be removed early. Conversely, while little ones need more time with the clip attached to the skis, the clip still allows the child to learn by "doing", it removes some of the stress on the instructor, and it makes it possible to have fun skiing terrain which would not be possible without the use of the tip-clip.

Attaching the clip

Position the clip so that the wing nut attachment is on top of the ski and high enough on the tip that it will not drag in the snow. The butterfly clip removes easily to allow the child to walk with the skis, making it easier to ride the lift. Remove the clip when needed and re-attach it at the top.

Acquiring a clip

Ask your ski club for assistance first. Or, assemble on yourself using the parts listed here. Note that new skis require a wide grip to encompass the thickness of the ski. Another good feature is the rubber padding which protects the skis from damage made by the screws.

Parts

- Butterfly clip.
- Shackle.
- Thumb screw.
- Rubber pad.

Simple and effective!

SKILLS AND TACTICS

Understanding the Skills Concept (see page 3.2) is essential to teach children effectively because children's mental and physical capabilities are constantly changing. By using the skills concept, the instructor can help the students develop and refine their technique while they are still using wedge or wide-track parallel. For example, once pre-schoolers have mastered the basic snowplow, the instructor can take them on more challenging terrain to develop skills of pivoting and edging. By skiing faster, and varying rhythm, the students continue to develop and refine their skills while still in a wedge. The progression from snowplow to novice christie and on to intermediate parallel, occurs naturally as the students' skills are developed and refined. By focusing on skill development in a fun way, the instructor creates a positive, stress-free environment for the children to try new manoeuvres according to their individual skill level.

The flowcharts on the following pages, outline a basic approach and some strategies for an instructor to use with students of various ages and skill levels, as well as a list of suggestions for exercises and tactics to develop certain skills. These pages are intended as a guide to assist you in creating your own strategies and tactics. As you gain experience, you will find yourself inventing new tactics and exercises to accommodate the individual needs and interests of your students.

This formula is a simple tool to help an instructor design a lesson plan to work with children:

- Assess the skiing level of the child.
- From your observations, determine which of the five basic skills of skiing will be the focal point of the lesson.
- Identify the stage of development of the child.

Armed with this information, invent or choose a game that will target the selected skill, and will appeal to the child given his age and interests. This is your tactic. Choose an appropriate slope for learning. Use the games for learning purposes, but allow children free time to ski!

COMMUNICATION

Communicating with parents can be a challenge, especially if parents have unrealistic expectations. Here are some helpful ideas to carry on a conversation in a non-confrontational manner. These tips have the potential to engage the parents in problem-solving.

To be a good communicators, be a good listener:

- Give your full attention to what is being said: avoid internal dialogue while the person is speaking. Let him/her finish before formulating an answer. Pause and then reply.
- Show concern that your message is heard the way it is intended; paraphrase questions and repeat them in your own words to ensure mutual understanding.
- Ask questions to help learning, and to clarify what has not been understood.

Use open-ended questions, questions that require explanatory answers, more than a yes/no answers. Instead of making statements, use questions as much as possible. Phrase your questions using:

- What?
- How (“how is it?” rather than “how come?”).

Avoid “why” questions; they can be taken the wrong way, and be seen as confrontational or close down a subject. Here are some tips to effective listening:

Receiving Feedback:

- Listen with an open mind; try not to resist the feedback.
- Ask questions to make sure you got the right message.
- Resist the urge to disagree, to justify your behaviour, or to defend yourself; you will not listen as effectively if you are defensive.

And most important of all; if you feel a problem is more than you can handle, enlist the help of your supervisor or team leader!

THE CHECK LIST

Attitude

- Adopt a good positive attitude.
- Smile, be friendly.
- Stay calm, stay in control.
- Remember that children are not small adults, they have a different mental framework and don't see the whole picture the way you do so keep it simple.
- Be honest and fair.
- Investigate ways to improve your competence to become a better instructor.

Communication

- Inform the kids of the lesson's goals and objectives in simple, non-technical language.
- Use simple, clear explanations.
- Ask the students for ideas and feedback. Know what their interests outside of skiing are so that you can incorporate them in the lesson.
- Listen to the students and learn from them, use their imagination!
- Inform parents of their children's progress, both successes and difficulties.
- Share and exchange ideas with colleagues.

Care

- See the world as they see it. Kneel down to communicate at their level.
- Know the name of each and every student and use their names often.
- Make everyone feel part of the group, draw out the shy or quiet ones.
- Identify the learning style of each child.
- Give all students individual and equal attention.
- Respect each child's learning rhythm and energy level.
- Encourage them enthusiastically.
- Make sure the children understand your explanations.
- Celebrate their successes! Focus on what they do right (not their mistakes).

Administration

- Prepare a daily lesson plan with clear objectives. Be prepared to adjust it for weather and conditions.
- Always be on time.
- Choose appropriate terrain.
- Check the children's equipment and make appropriate recommendations to their parents.

Safety

- Reassure nervous students frequently. Be aware of their mental states and emotions.
- Create a friendly and safe environment.
- Provide guidance to discover the mountain and resort environment safely.
- Make sure the students are comfortable and appropriately dressed for the weather.
- Act like a responsible parent. Safety always comes first.