



SKI TEACHING METHODOLOGY REFERENCE GUIDE

Based on Past and Current CSIA Concepts
(Fall 2019)



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CADS Mission

CADS provides opportunities for people with disabilities to experience the joy of participating and competing in alpine snowsports. CADS achieves this by developing and promoting adaptive snowsports through partnerships, training, and instructor certification programs.

CADS Vision

CADS is recognized nationally and internationally for its leadership in alpine adaptive snowsports.

Purpose of the CADS Technical Committee

The purpose of the Technical Committee (TC) is to provide technical expertise and oversight in the delivery of training programs and certification requirements for CADS Instructors, thereby contributing to the growth and enjoyment of adaptive snowsports.

In this Teaching Methodology, specific expressions and/or terms will be used extensively and are defined here:

- Student:** A person living with a disability.
- Volunteer:** A person who is not CADS Certified but who works within an adaptive snowsports program.
- Candidate:** A person pursuing a CADS Complete or Module Certification.
- Instructor:** A person holding a CADS Certification Level or Module.
- Course Conductor:** A person holding a CADS Level 3 Certification and who has passed the Course Conductor Evaluation at Pre-Course or is a CADS Level 4 or 4 Examiner.
- CSIA:** Canadian Ski Instructor Alliance is a supportive partner of CADS

The Certification Standards contained in this document were developed by the Technical Committee (TC) of the Canadian Adaptive Snowsports (CADS) and approved by the CADS Board of Directors. The certification standards represent a minimum standard for **Volunteers / Candidate**. The Standards also offer the basis for a program of training for potential and existing instructors.

The Standards for certification are based on knowledge, teaching ability and skiing ability, and are outlined in detail in a Certification Study Guide for each level. The Standards will be reviewed by the CADS Technical Committee in consultation with key stakeholders. All updated Standards must be approved by the CADS Board of Directors.

The CADS Technical Committee has gathered the basic principles which support the changes in the CADS Instruction Manual and the Certification System through consultations and surveys. The results are:

- ✓ *Understandable*
- ✓ *Universal (Volunteer Training and Instructor Training and Certification Standards)*
- ✓ *Best Practices (Para and Able Bodied)*
- ✓ *Educational (Competencies)*
- ✓ *Affordable*
- ✓ *Achievable (Modular - at your own pace)*
- ✓ *Appealing / Attractive (No time limits between levels; Modular or Complete Training and Certification to be proud of)*
- ✓ *Meaningful (More knowledge-based Volunteers, Instructors, Course Conductors, Level 4s and Level 4 Examiners)*
- ✓ *Flexible*
- ✓ *Fun (Training and Certification using an experiential learning approach)*
- ✓ *Cross Disciplinarian (Inclusive – Adapted snow sports including snowboarding)*
- ✓ *Bilingual*
- ✓ *Trackable (New TC database aligned with new CADS National requirements)*
- ✓ *Address Succession Plan with vulnerable Divisions CADS Level 3 + certification needs*

The Gliding Experience – Creating New Skiers

The Gliding Experience works around four objectives and by using them, instructors develop skills through a variety of tactical, student-centered activities. **The Gliding Experience** moves away from step-based and technically focused traditions and replaces the previous “Fast Track to Parallel” progression.

Learning activities are built around four skiing objectives:

- **Mobility** in the skiing environment
- **Speed Management** control, maintain or increase as desired
- **Gliding** with comfort and balance
- **Direction Change** for control and rhythm

The Gliding Experience – Terrain Assisted Development

- ✓ Instructors may use terrain features and contours to make a game of learning to ski. At the same time the terrain features offer specific developmental tools for the instructor.

Mobility

- ✓ Maintain some rhythm.

Speed Management:

- ✓ Choose and demonstrate a snow plow stance when appropriate.
- ✓ Show the ability to stop in a parallel stance.
- ✓ Modify turn shape relative to snow conditions and steepness of terrain.

Gliding:

- ✓ Choose terrain to demonstrate gliding without braking.
- ✓ Adjust edge grip to show side slipping / skidded arcs.
- ✓ Show balanced sliding in the middle of the ski.

Direction Change:

- ✓ Choose appropriate turn shape for student.
- ✓ Show efficient turn linking.

CSIA Technical Reference

The CSIA Technical Reference is a set of guiding principles which describe the relationship between body and skis for efficient and effective skiing.

- **Use of all joints help maintain balance**, providing the ability to manage forces acting on the ski and skier.
 - Balance is crucial for effective skiing.
 - A stance centered between the bindings (Base of Support = BOS) with the correct amount of flexion in the joints will provide a centered and mobile stance (Centre of Mass = COM).
 - Mobility is crucial to meet the changes and forces developing by moving on a slope.
 - There are 4 forces that act upon us: gravity **holding on the slope**, gravity **pulling us down the hill**, centrifugal forces **pulling us outwards**, friction against **wind and snow**.
 - As an Instructor, you are looking to see if your student is too far forward or backwards on their skis.
- **Turning is led by the lower body** and the ski design.
 - Develop turning of the legs in the hip sockets while making adjustments with both ankles and knees to create a change in direction. For adaptive skiing, the idea is to steer using the lowest possible joint or functioning part of the body.
 - Ski design will greatly influence the turning arc.
 - View the steering of the skis in a continuous arc with a quiet upper body.
 - As an Instructor, you are looking to see if your student is able to steer from below the waist.

- **Upper and lower body separation** allows for angulations to provide grip.
 - Turning with the lower body will create a break with the upper body.
 - Angulation allows this break to continue while steering through the arc. Progressive angulation with balance will allow edge grip throughout the arc of the turn.
 - On steeper terrain and at faster speed, the edges of the skis will dig-in at a greater angle to grip the slope. This will give the skier more control and the angulation allow them to balance on their outside ski.
 - As an Instructor, you are looking to see if your student is able to manage the previous Technical Reference while keeping their shoulders level with the slope and upper body facing down the hill to ensure that the outside ski is gripping the snow.

- **Coordinated movement patterns** direct the forces acting on the skis and the momentum of the skier from turn to turn.
 - Flow is the goal.
 - A coordinated movement pattern (flexion, extension, lateral, inclination, angulation) at the correct time and place will yield a continuous edged turning arc and demonstrate a flow to the skier moving down the slope.
 - As an Instructor, you are looking to see if your student is able to react to the changes in the terrain with smooth movements.

The Technical Reference pertains to all abilities, ages, terrain and equipment and is relevant to all turn shapes, speeds and levels of performance.

Technical Assessment – Performance Criteria

General performance criteria for Intermediate Parallel on groomed Intermediate terrain:

Objective:

- ✓ Maintain intermediate speeds
- ✓ Blend skills to achieve a steered, skidded arc
- ✓ Maintain consistent turn shape relative to speed and terrain

Technique:

- ✓ Lead the turning effort with the lower body
- ✓ Utilize the ski design for efficient turning
- ✓ Manage separation for angulation to provide grip
- ✓ Use all joints to maintain a centered stance
- ✓ Coordinate movement patterns for efficient turn linking

Demonstrations: (maintaining technical performance criteria above):

- ✓ Show a centered stance and mobility in joints while pushing with poles
- ✓ Balance laterally from foot to foot while skating
- ✓ Show edge grip through climbing or side stepping

The 5 Skills in Relationship to CSIA Technical Reference

Stance & Balance = Maintain Balance

- Stacking the joints so that there is flexion in the ankle, knee and hip which allows the skier to balance over the BOS.

Pivot = Turning is led by the Lower Body

- The act of turning the skis across the direction of travel by rotating the leg in the hip socket so as to create a new steering angle and therefore a change of direction of the skis.

Edging = Upper & Lower Body Separation

- The act of tipping the skis onto their sides (edges).

Pressure Control = Uses of All Joints

- Regulation of forces acting on the base of the skis.

Timing and Coordination / Flow = Coordinated Movement Patterns

- Blending of the previous four skills at the correct time and place – flow.

Teaching Tactics

The **Development Tools** to achieve the Technical Reference are tactics which utilize the following skills. The skills, however, must be understood and implemented by the Candidate when selecting the proper tactics.

Stance and Balance

- ✓ Proper stance for balance includes flexed ankle, knee and hip, hands forward and to the side (holding a large beach ball). When performed correctly, the skier should achieve “nose over toes”. Stance is not static – flex / extend while moving – hop or step through the arc for balance.
- ✓ If sitting back on heels – hands on knees, pole tips dragging at front binding.
- ✓ If leaning uphill (weight on uphill ski) – reach down and touch side of boot on downhill(outside) ski; holding pole like a sword, reach downhill and drag pole basket on snow.

Pivot

- ✓ The act of pivoting the skis is achieved by turning the leg in the hip socket.
- ✓ Watch that tip and tail move equally in opposite directions.
- ✓ Use small flexion and extension to pivot skis.
- ✓ Pivot is accomplished when ski is flat and not on edge.

Edging

- ✓ When the ski is tipped over the ski, the edge will engage. A wedge turn will give the feel of edging. Hockey stops, sideslip.

Pressure Control

- ✓ Ski over rolls or moguls to feel pressure build up and decrease; controlled by flexing and extending the body.

Timing & Coordination / Flow

- ✓ Ski synchro on easy groomed terrain; play with pole plant.

Pole Plant

- ✓ The pole plant takes place at the end of the turn to establish balance over the edges
- ✓ Pole basket should move forward on an arc as the arc is progressing so that it is ready to plant
- ✓ The pole can have some weight on it to stabilize the upper body and prevent rotation
- ✓ Once planted, ski past the pole and then ready it to move forward into the next arc
- ✓ The pole movement will assist rhythm

Instructor must understand and have knowledge of Ski Teaching Methodology.

The priority is the skier's overall experience as the instructor engages clients and uses situations and fun activities for improvement.

Decision Making Process

Learning Contract: The starting point for all decisions is the **learning contract** shared by the instructor and learner. By considering the learner's experience, objectives, and physical and psychological factors, the instructor builds student-centered activities tailored to each learner. The AOT in the CADS session creates the learning contract.

- The Candidate will look for areas in need of improvement and institute a tactic for improvement and development.
- The Candidate will provide easy to see and follow demonstrations while explaining what the student should feel.
- The Candidate will provide positive feedback during teaching sequences and seek out student input.
- The Candidate will demonstrate clear, concise verbal communication of ideas required in the teaching sequence.

Situation: The **situation** is always a factor in decision- making. Terrain, conditions and a safe learning environment must be constant considerations for the instructor. Naturally occurring and man-made terrain features provide opportunities for **terrain assisted development**.

- The Candidate will demonstrate and state issues of safety during class sequences.
- The Candidate will choose appropriate terrain for success.
- The Candidate will demonstrate class organization and movement about the hill with proper verbal directions.

Skiing Objectives: Learning activities are built around four **skiing objectives**, prioritized according to student needs and changing situations. This focuses on managing the skiing environment instead of technical aspects. The Candidate will define and demonstrate their ability to teach a skiing objective based on the student and situation. The objectives are:

- Mobility – in the skiing environment
- Gliding – with comfort and balance
- Direction change – for control and rhythm
- Speed management – control, maintain or increase as desired

Motor skill development: This guides the choice and use of activities. Through observation (AOT), the instructor or candidate determines tasks for the learner, decides how much repetition and practice time is needed, and uses their situational and technical knowledge to vary tasks for fun and learning.

- The Candidate will create an appropriate task for the skill level to be achieved.

This section reviews the 5 stages of Motor Skill Development, and how an Instructor can create appropriate task for the skill level of their student through these stages.

Beginner:

- Initiation – First contact with the skill
- Acquisition – Capable of performing a rough form of the skill

Intermediate:

- Consolidation – Execute the movement with correct form

Advanced:

- Refinement – Very close to the ideal form and speed
- Creative Variation – Developed a personal and efficient style

Reflective Learning

The CSIA approach to teaching aligns to the following learning cycle:

- Task → Reflect → Understand → Vary → [Repeat]

Task: The Instructor assigns a task for the student to work on a skill. The task targets a goal for a specific outcome. The Instructor then gives specific information to the student, about concise sensations (intrinsic) or things to focus on (extrinsic) for them to pay attention to.

Reflect: After the student performs the task, the Instructor can reinforce the activity by asking the student to think about how it felt or what they did. This reinforces the awareness of certain feelings or actions.

Understand: The Instructor and student compare what the student did in regard to the intended outcome. Help the student understand how their actions affected what the Instructor observed. Repetition and understanding will reinforce & consolidate the skills and concepts.

Vary: Now that the student understands how a specific skill/action is linked to a feeling or outcome, the Instructor can vary the Speed, Turn Shape, Terrain, Degree or Rate of Application of an action. As an Instructor, it's tempting to work on many skills in a single lesson, but the CSIA & CADS recommends that we choose multiple variations of tasks to reinforce a single element, deepening the student's understanding.

Lesson Planning

The above **Decision-Making Process** and **Reflective Learning** walks through a standard lesson idea for Instructors to follow when teaching their students of different skill levels. For each level, it provides detail on what an Instructor would want to work on with their student in each of the 4 Skiing Objectives (Mobility, Gliding, Direction Change and Speed Management).

Exercises (or 'tactics') are recommended for each of the 4 skiing objectives at the different levels of lessons. If the Instructor successfully helps their student improve technique and learn skills during the lesson, the 'Gliding Experience' of the student will be a positive one.

The following information is provided to assist the Candidate to more fully understand the Ski Technique and Methodology.

Tasks

The developmental tools needed to achieve the Technical Reference are tactics which incorporate the following skills. The skills themselves, however, are not taught specifically but rather the skills must be fully understood by the Candidate in order to select the proper tactics.

Below are tasks which the Candidate may use during the lesson. They are by no means the only tasks to be employed in a given situation. Candidates are encouraged to compile their own list for use in teaching scenarios.

- ✓ Use poles, swiffers, brushes, and cones in slalom course for direction change.
- ✓ Serpentine turns.
- ✓ Minimum slope maximum speed – minimum number of turns to increase speed.
- ✓ Hopping, picking up uphill (inside) ski for balance.
- ✓ Hands on knees, on outside of downhill knee, flex and extend while turning all for balance and edge awareness.
- ✓ Skiing backwards on gentle slope then move to intermediate slope.
- ✓ Flex and extend using rolls, humps etc., for feelings of pressure.
- ✓ Encourage small jumps over small rollers for balance.
- ✓ Use side hills to ski on for edging.
- ✓ Use 360 turns for balance and edge awareness.
- ✓ Reach down on outside ski to boot tops and feel ski edges engaging.

Technical Basics – Understanding Terminology

- ✓ COM – Centre of Mass– average position of mass of a body – usually inside a body but not always – e.g. a donut – COM is in the hole – not a fixed point – changes with shape – based on body shape (males usually located around the area of the navel (belly button) – female usually lower toward the hips).
- ✓ BOS – Base of Support – basic stance – wide stance more stable than narrow stance – pole plant increases size of BOS – use BOS for changes while skiing (feet).
- ✓ Forces in skiing:
 - Gravity – as in life it is vertical but on a slope, is both vertical and parallel to the slope.
 - Friction – caused by the movement of two surfaces rubbing together – skis and snow.
 - Centrifugal – an object moving in an arc wants to move out of the arc – e.g. ball on a string swung round the head – undo the string and the ball moves away from the intended arc.
- ✓ Steering angle – angle between where the ski is going and where one wants the ski to go – created by pivoting the ski to a new direction.
- ✓ Counter rotation – created by turning the legs under the hip and upper body so that the skis continue to move on the arc while the upper body faces the tangent of the arc.
- ✓ Edge angle – angle created between the ski and the snow by tipping the ski on edge.
- ✓ Pivot – the act of turning the leg(s) in the hip socket which turns the ski to a new steering angle.
- ✓ Pressure – the forces acting on the bottom of the skis – relieved and controlled by flexing and extending the body.
- ✓ Timing & Coordination – blending the skills at the correct time and place through the turning arc.
- ✓ Stance and Balance – the joint positions of stacking the body over the BOS.
- ✓ Carving – turning the skis so that the tail of the ski on edge follows the exact path of the tip of the ski.
- ✓ Fall line – located on hill – the path which a basketball would follow down the hill if released – many and different fall lines on a single hill.
- ✓ Skidded skis – skis that are slightly on edge but are allowed to move across the snow sideways.
- ✓ Steering – the act of directing the skis through a continuous arc – steering is a combination of pivoting, edging and pressure control through an arc.
- ✓ Wedge – skis are placed with tips together and tails apart as they move on the slope.
- ✓ Linking – referred to turns as in going from one turn immediately to the next.
- ✓ Inclination – leaning of the body against external forces.
- ✓ Angulation – angles formed between body segments such as ankle, knee and hip and torso.

The Candidate’s attendance at the Ski Teaching Methodology clinic, the Candidate must exhibit the following knowledge while participating in either the CADS Complete or Module Certification for Ski Level 1 or 2.

	The Candidate will:
Gliding Experience and Technical Reference	Know the components of both the Gliding Experience and Technical Reference.
5 Skills	Know the 5 skills and be able to discuss them. Know where the 5 skills fit into the Gliding Experience and Technical Reference. Demonstrate where they apply in the turn shape of a parallel skidded turn.
CSIA – turn shape	Be able to perform parallel skidded turns on appropriate groomed runs.
CSIA on snow teaching tactics for skill development.	Be able to utilize some tactics as presented by the Course Conductor to accomplish a developmental goal during teaching the CADS portion of the CADS Certification.
Ski backwards on beginner groomed slopes	Be able to ski backwards on beginner terrain while linking turns in either a wedge or parallel position and be able to stop in the fall line in a backward skiing position.

The complete requirement is detailed in the CADS Level 1 or 2 study guide under the Ski Teaching Methodology section.

Ski Ability (will involve the following):

- The Candidate needs to show knowledge and the ability to use the Gliding Experience and Technical Reference.
- The Candidate must demonstrate ability to use the skills in correct sequence.
- The Candidate shows a lack of flow in the turn sequences and may utilize increased lateral distance between turns to prepare for the upcoming turn shape, but flow is evident.
- The Candidate needs to show speed control on appropriate groomed terrain although under conditions of stress may abandon this ability.
- The Candidate must perform linked turns, with edging, throughout the arc.
- The Candidate can utilize a pole plant at the end of the arc in preparation of the next turn. The action may be jerky and lack flow.

By the end of the Ski Teaching Methodology Session the Candidate will:

- Demonstrate ability to properly utilize the skills in correct order, with some flow, when skiing on Intermediate terrain.
- Demonstrate a basic understanding of the CSIA Technical References and Decision-Making Process.
- Be able to select appropriate tactics to demonstrate the skills.
- Demonstrate their increased knowledge of the skills and balance by exhibiting a centered mobile stance, pivot and edging.
- Will begin to demonstrate the ability to steer with the lower body throughout the turn shape and show upper and lower body separation relative to speed and terrain.
- Will begin to demonstrate speed control by performing constant linked turns and by completing the turn shape on an appropriate groomed slope at an intermediate speed.
- Demonstrate ability to provide an edged ski throughout the turn shape using angulation and balance.
- Demonstrate linked turns on appropriate slopes while demonstrate a level of flow.
- Must demonstrate their ability to ski backwards while teaching a lesson.
- Demonstrate the use of a pole plant at the end of a turn for preparation of the next turn.
- Knows and refers to the Alpine Responsibility Code, along with showing safe teaching practise.