



# **BKL coach manual**

*January 2012*



To: Ford Sayre Coaches  
From: Dennis Donahue  
Date: November 14, 2011  
Subject: Ford Sayre Emergency Plan/Notes

The following information applies during all months. The instructions are written primarily for Oak Hill/Storr's Pond area and the trail system there. Procedures apply to Garipay as well with the distinction emergency information could be given to the police and fire departments in person.

In an emergency:

1. Call 911 first, always. A secondary telephone number is 643-2222; this is the local number for Hanover dispatch.
2. If a participant/skier is injured, make the 911 call as soon possible; protect the injured person from the elements (cold); do not abandon the injured person if this can be avoided.
3. When trying to describe where an injured person may be located, use the trail junction number closest to the site plus the common trail or location name (area #5, Storr's Pond loop, tennis courts, stadium, etc). Hanover dispatch should have the official Oak Hill trail map with junction numbers, trail names, and landmarks. If a trail location cannot be defined in a timely fashion, Hanover will send rescue vehicles to the Oak Hill parking lot.
4. If more than one person is with an injured person on a trail, and if practicable, one person should go to the Touring Center office (Hanover Improvement Society garage)/Oak Hill Parking lot to report the incident to Dartmouth personnel (if present) and Ford Sayre leaders; and to help guide rescue personnel to precise location of incident.

Notes:

1. Hanover dispatch (at police department) most likely will be involved in a 911 ambulance type (as opposed to fire or police) telephone call, even though the 911 centers are in Concord and Laconia, NH. Current 911 protocol is 911 will connect to locale(s) with rescue equipment nearest incident for medical emergencies. 911 will progress through standard question/answer protocol before connecting to other agencies for fire and police calls.
2. In a medical emergency to Oak Hill, for example, the response from Hanover would be: big ambulance, fire truck, police vehicle, and truck with snow mobile on trailer (winter). Parking lot fire lane is mandatory, but no clear

method for enforcing this has been established. If Hanover equipment cannot get into the parking lot, it will stop as close as possible to the lot.

3. If a precise location can be given to Hanover dispatch, and confirmed by the dispatcher, other access points to the Oak Hill trail system are: road to Storr's Pond from Dartmouth Printing lot, and near the reservoir gate where Reservoir Road and Grasse Road meet. Default location is Oak Hill parking lot.

#### Outdoor Recreation Common Sense

1. Dress appropriately
2. Do not be alone
3. Do not wander off marked/groomed trails
4. Make sure others know where you are going

# FORD SAYRE NORDIC RACING

## PROGRAM GOALS

*as articulated by Ford Sayre Nordic working group, 2009*

- Develop in participants a **life-long passion for skiing**
- Equip participants to **pursue skiing at whatever competitive level** they want
- Provide an **age-appropriate progression** of opportunities for growth and development
- Ensure that participants **experience the exhilaration of going fast** on skis
- Create a **positive learning environment** that emphasizes **individual improvement**
- **Introduce skiers to competition** and to what skiing at the next level means
- Develop **cooperative and supportive skiers** and young athletes
- Create opportunities for **older skiers to mentor younger skiers** and for **younger skiers to see older ones as role models**
- Ensure that all participants (skiers, coaches, parents) see themselves as **members of the Ford Sayre community**



## **BKL Coaching Pearls**

these “words of wisdom” have been accumulated from various coach education opportunities. with apologies to the presenters, these are paraphrased according to what lingers in memory!

**The more you talk, the more you screw them up. Kids will intuitively figure out how to move more effectively if you create a good environment and get them moving on skis.**

*Matt Whitcomb, former US Ski Team Development Coach, current US Ski Team Women’s Coach (December 2008 Ford Sayre BKL coach clinic)*

**Kids don’t care how much you know. They need to MOVE. Stop talking and start DOING.**

*Chris Wielgus, Dartmouth women’s basketball coach (April 2007 Dartmouth-hosted youth coaching conference / December 2010 Ford Sayre BKL coach clinic)*

**The ideal BKL program will graduate kids who LOVE skiing, and who have a very active lifestyle, overall athleticism, and good technique (notice I didn’t say perfect technique).**

*Sverre Caldwell, Head Coach Stratton Mountain School (September 2010 NENSA Coaching Symposium)*

**Meet energy with energy! The most important coaching tool is the 2pm cup of coffee.**

*John Ogden, West River Nordic BKL coach (October 2011 NENSA BKL Coach Clinic)*

**Laughter is a great equalizer in any group.**

*Dennis Donahue, Ford Sayre coach (observing John Griesemer’s bounding session with a very mixed group of 3rd/4th graders during a Fall 2011 practice)*





## FORD SAYRE ATHLETE DEVELOPMENT PROGRESSIONS

### Important considerations for youth (J6/J5/J4/J3) athletes:

- “children are children and not small adults”
- critical period for development of general motor skills (agility, coordination, balance)
  - these skills are the foundation for development of good technique, balance, rhythm, stability, control
  - such skills may be impossible to learn equally well in later years
- J3: huge variation in development/maturation – can see a spread of 4+/- years within one chronological age

| AGE                           | DEVELOPMENTAL STAGE & HIGHLIGHTS   |
|-------------------------------|--|
| K-2 /<br><b>J6</b><br>(6-7)   | <p><b><i>athletic fundamentals</i></b></p> <ul style="list-style-type: none"> <li>• learn basic athletic skills through skiing / multi-sport participation:                             <ul style="list-style-type: none"> <li>– athletic coordination</li> <li>– balance</li> <li>– agility</li> <li>– overall strength</li> <li>– flexibility</li> <li>– speed</li> <li>– basic fitness</li> <li>– explosiveness</li> </ul> </li> <li>• importance of teamwork and fair play are learned</li> <li>• fun is the major focus</li> </ul>  |
| 3-4 /<br><b>J5</b><br>(8-9)   | <p><b><i>learning to prepare for sport</i></b></p> <ul style="list-style-type: none"> <li>• learn skills that lay foundation for future development</li> <li>• participate in a variety of sports to develop:                             <ul style="list-style-type: none"> <li>– strength</li> <li>– flexibility</li> <li>– agility</li> <li>– coordination</li> <li>– balance</li> <li>– speed</li> <li>– endurance</li> </ul> </li> <li>• continued emphasis on fair play, teamwork, fun</li> <li>• participate in local (district) and regional (BKL Festival) races</li> </ul> |
| 5-6 /<br><b>J4</b><br>(10-11) | <p><b><i>preparing for sport</i></b></p> <ul style="list-style-type: none"> <li>• athlete’s rate of growth and development dictates the stage of progress and specialization</li> <li>• fun – games and play – continue to be important</li> <li>• develop ski-specific skills (technique)</li> <li>• social events, group interaction contribute to motivation</li> <li>• important period for speed development</li> <li>• participate in local (district) and regional (BKL Festival) races</li> </ul>  |
| 7-8 /<br><b>J3</b><br>(12-13) | <p><b><i>preparing for sport</i></b></p> <ul style="list-style-type: none"> <li>• athlete’s rate of growth and development dictates the stage of progress and specialization</li> <li>• fun – games and play – continue to be important</li> <li>• develop ski-specific skills (technique)</li> <li>• social events, group interaction contribute to motivation</li> <li>• important period for speed development</li> <li>• participate in local (district) and regional (BKL Festival) races</li> </ul>  |

**Important considerations for junior (J2/J1/OJ) athletes:**

- “youth are youth and not half-grown adults”
- critical period for development of speed
- important period for development of aerobic capacity (base)
- narrow focus to fewer sports (specialize toward end of this period)
- optimize skills and fitness for sport of choice; other sports become part of preparation for chosen sport
- year-round ski training includes rollerskiing, dryland, technique refinement, strength, endurance, speed
- J2/early J1: huge variation in development/maturation – can see a spread of 4+/- years within one chronological age
- motivation comes from within and from team/peers
- individual goals (set by athlete) are basis for measurement of success
- athletes becoming increasingly independent throughout this period

| AGE                                     | DEVELOPMENTAL STAGE & HIGHLIGHTS   |
|---|--|
| <b>9-10 / J2 (14-15)</b>                | <p><b>competitive development</b></p> <ul style="list-style-type: none"> <li>• athlete’s rate of growth and development dictates the stage of progress and specialization</li> <li>• develop ski-specific fitness:               <ul style="list-style-type: none"> <li>– core strength</li> <li>– specific strength</li> <li>– aerobic capacity (base)</li> <li>– balance/stability/reaction</li> <li>– speed</li> </ul> </li> <li>• refine ski-specific skills (technique, rollerskiing)</li> <li>• begin to focus attention on fewer sports and ski-specific training</li> <li>• develop race preparation routine</li> <li>• team-building, group interaction, social/emotional considerations, fun times on skis/training continue to be important</li> <li>• athletes begin to know own strengths, weaknesses, motivation</li> <li>• athletes set individual goals by which personal success may be measured</li> <li>• plan and prepare for best performance at specific event</li> <li>• racing focus: high regional and national levels</li> </ul> |
| <b>11-12 / J1 (16-17)</b>               | <p><b>sport specialization</b></p> <ul style="list-style-type: none"> <li>• optimize specific sport skills and fitness toward competing in the sport</li> <li>• single sport should be chosen as primary focus for year-round systematic training</li> <li>• other sports may be used as a part of preparation</li> <li>• all aspects of the specific sport must be addressed and incorporated</li> <li>• fair play, teamwork and the enjoyment of the process of preparation toward accomplishments should be emphasized – fun is not forgotten!</li> </ul>   |
| <b>12 +/ OJ (18-19)</b>                 | <ul style="list-style-type: none"> <li>• further refine ski-specific skills (technique) – develop ability to feel and work on technical improvements w/ or w/out coach present and in competitive situations</li> <li>• plan and log training</li> <li>• refine race preparation routine</li> <li>• develop event-specific tactical preparation</li> <li>• plan and prepare for best performance at specific event</li> <li>• racing focus: high regional and national levels</li> </ul>   |
| <b>college U23 (20-22) &amp; beyond</b> | <p><b>sport excellence</b></p> <ul style="list-style-type: none"> <li>• Ford Sayre collegiate athletes supported by FS coaches when training locally</li> <li>• home club becomes resource – eg coaching and race support when requested</li> <li>• continued contact with Ford Sayre juniors (mentoring): joining training sessions, assistant coaching, etc</li> </ul>   |

## FORD SAYRE JUNIOR NORDIC RACING: MARKERS of COMPETENCY by AGE GROUP

| domain ↓ / gr →      | 1st/2nd (J6)  | 3rd/4th (J5)   | 5th/6th (J4)   | 7th/8th (J3)  | J2 (14/15 yo)   | J1/OJ (16-19 yo)  |
|----------------------|---|--|--|---|---|---|
| <b>coordination</b>  | coordinates arms and legs in classic stride without poles   | coordinates arms and legs, with good <u>rhythm</u> , while using poles in <u>both techniques</u> | coordinates arms (with poles) and legs while kicking/gliding <u>rhythmically in both techniques</u>      | shows coordinated technique with increasing speeds; begins coordinated <u>technique transitions</u>                                       | <u>changes technique smoothly and quickly in response to terrain/speed</u>  | demonstrates coordinated technique <u>during races</u> in response to terrain and speed                           |
| <b>balance</b>       | maintains body over skis; glides downhill on two skis       | kicks with one foot, glides on the other for a short distance                                    | consistently glides on a single ski in flat terrain  | <u>balances on one ski while skiing gradually downhill; demonstrates weight shift</u>   | balances on one ski on increasingly steep downhills; <u>demonstrates complete weight shift in all techniques</u>                                      | applies advanced balance skills <u>in race settings</u>   |
| <b>agility</b>       | negotiates corners in flat terrain                          | negotiates corners in varied terrain   | carries momentum while stepping turns in flat terrain  | steps downhill turns; quickly changes tracks  | negotiates around corners, other skiers, etc fluidly  | fluidly adapts to terrain/conditions <u>during races</u>  |
| <b>strength</b>      | general strength comes from ski activity                    | general strength comes from ski activity, including use of poles                                 | strength comes from ski activity; double poles and no-pole skis in flat terrain                          | strength comes from ski activity; double poles and no-pole skis in flat and gradual terrain   | <u>begins differentiation of general, core, and specific strength;</u> double poles and no pole skis in varied terrain                                | general, core, and specific strength all represented in training; double poles and no pole skis in varied terrain |
| <b>speed</b>         | has one speed, unless aided by gravity                      | increases speed for short bursts in games and short relay races                                  | varies speed (mainly between "slow" and "fast" gears) and understands that tempo is the engine for speed | makes independent decisions about when to increase tempo for a variety of purposes (passing a skier, taking advantage of terrain, etc...) | begins to train specifically to be able to utilize fast-twitch muscles; <u>varies tempo and speed on demand in response to terrain and conditions</u> | differentiates sprint pace/tempo from application of speed during distance <u>races</u>                           |
| <b>explosiveness</b> | can make quick stop/go and directional changes during games | can make quick stop/go and directional changes during games                                      | can make quick stop/go and directional changes during games  | can start quickly from a standstill; demonstrates decisive kick motion and quick arm movements  | begins to perform specific explosive training exercises (eg spenst, bounding)   | <u>builds repertoire and application of specific explosive training exercises (eg spenst, bounding)</u>           |

| domain ↓ / gr →               | 1st/2nd (J6)   | 3rd/4th (J5)  | 5th/6th (J4)   | 7th/8th (J3)  | J2 (14/15 yo)  | J1/OJ (16-19 yo)  |
|-------------------------------|--|---|--|---|--|---|
| <b>fitness/<br/>endurance</b> | can ski continuously at an easy pace for 15-20min  | can ski continuously at an easy pace for 20-30min; can ski hard for 5-10min   | can ski continuously at an easy pace for 30min; can ski hard for 10min   | can ski continuously at an easy pace for 1hr; can maintain race pace for 10-15min   | begins to understand and feel different levels of training; can train continuously at an easy pace for 2hrs; can maintain race pace for 15-20min | <u>applies appropriate level(s) of training for given workout</u> ; can train continuously at an easy pace for 3hrs; can maintain race pace for 20-45min                                      |
| <b>technique</b>              | stands comfortably on skis; <u>can snowplow; can herringbone</u>   | <u>demonstrates basic athletic stance on skis</u> ; can kick/glide for short distances in <u>both techniques</u>  | <u>can differentiate between running and gliding; begins to differentiate V1 vs V2 and double pole vs kick double pole</u> | <u>can V1 to both sides; begins to differentiate V2/V2 alternate; can kick double pole with each leg</u>                            | <u>performs all techniques in training; applies appropriate technique for terrain and conditions</u>   | <u>can apply all techniques in races</u> ; constantly adapts technique smoothly to terrain and conditions   |
| <b>downhill</b>               | can ski straight down gradual hill and can stop with modest snowplow; knows how to side step down hill; knows how to take skis off on a hill | can ski down any hill with slight corner or choose to walk down hill; can snowplow stop with turn to left or right; knows how to safely fall to stop; knows when and how to stop on a hill; can side step down a hill | can ski down any hill and stop quickly by any method; can snowplow navigate around other skiers on a downhill              | can safely navigate any downhill; can step around turns on medium speed hill; can safely bypass other skiers with lateral movements | can safely navigate any downhill; can safely avoid other skiers while passing; understands basics of best and safest line on downhill            | can safely navigate any downhill; can anticipate various conditions on downhill; can adapt safely without losing speed; can ski at fastest gravity speed; ; seeks best/safest line down hills |
| <b>teamwork</b>               | enjoys being with other kids on skis   | develops a sense of friendship through skiing   | camaraderie in skiing practice sessions and competition settings; <u>exhibits a sense of belonging to the group/team</u>   | <u>builds on ski friendships and supports teammates' aspirations and goals</u>  | <u>teammates with evolving individual goals train together and encourage each other to ensure individual and team success</u>                    | <u>core group with individual goals, both support and drive each other in practice and competition to succeed as individuals and as a team</u>  |

| domain ↓ / gr →          | 1st/2nd (J6)    | 3rd/4th (J5)  | 5th/6th (J4)   | 7th/8th (J3)   | J2 (14/15 yo)  | J1/OJ (16-19 yo)  |
|--------------------------|-----------------|---|--|--|--|---|
| <b>goal setting</b>      | n/a             | <u>can describe favorite part(s) of skiing</u> and something s/he wants to improve                    | <u>can describe favorite part(s) of skiing</u> and several areas in which s/he wants to improve        | sets several general goals; evaluates and re-sets mid-season   | <u>sets individual dream goal and process goals for improvement in each of 6 domains; works with coaches to evaluate and re-set as season progresses</u> | sets individual dream goal and process goals for improvement in each of 6 domains; works with coaches to evaluate and re-set as season progresses     |
| <b>training planning</b> | n/a             | n/a   | participates in planned practices  | participates in planned practices; during winter, <u>follows coaches' suggestions on non-practice days</u>             | <u>plans training, in consultation with coaches, according to period, 3-week cycle, and planned team training sessions</u>                               | <u>independently plans training according to period, 3-week cycle, and planned team training sessions; participates in designing training program</u> |
| <b>documentation</b>     | ski 4 k's chart | ski 4k's chart  | ski 4k's chart   | ski 4k's chart; tracks activity/time   | <u>keeps specific training log, including activity, time, reflective comments</u>  | <u>keeps specific training log, including activity, time, reflective comments</u>   |
| <b>equipment</b>         | waxless skis    | <u>waxable combi</u> or skate & classic skis; <u>participates while coach/parent applies kick wax</u> | <u>waxable combi</u> or skate & classic skis; <u>applies training wax with coach/parent assistance</u> | <u>skate &amp; classic skis; selects training wax with coach/parent assistance</u> and <u>applies own training wax</u> | <u>skate &amp; classic, race &amp; training skis; maintains own equipment: cleaning, glide wax, selection and application of training wax</u>            | <u>skate &amp; classic, race &amp; training skis; maintains own equipment: cleaning, glide wax, selection and application of training wax</u>         |

| domain ↓ / gr →                  | 1st/2nd (J6)                             | 3rd/4th (J5)  | 5th/6th (J4)  | 7th/8th (J3)   | J2 (14/15 yo)  | J1/OJ (16-19 yo)  |
|----------------------------------|--|---|---|--|--|---|
| <b>frequency of ski activity</b> | skis 1-3 times/week in winter            | <u>skis 2-5 times/week in winter; active in a variety of sports</u> | <u>skis 2-5 times/week in winter; active in a variety of sports</u>       | <u>skis 4-6 times/week in winter; active in a variety of sports; 250-300hrs</u>                              | <u>trains 6 times/week; active in a variety of sports; 300-350hrs; begins skiwalking, bounding, rollerskiing</u>       | <u>trains 5-12 times/week; active in other sports that complement year-round focus on xc skiing; 350-600hrs; skiwalking, bounding, rollerskiing summer/fall</u> |
| <b>race starts</b>               | may try local lollipop and/or J5 race(s) | competes in 3-4 local races +/- BKL (regional) Festival             | <u>competes in 4-6 local (district) races and BKL (regional) Festival</u> | <u>competes in 6-8 local (district) races and BKL (regional) Festival</u>                                    | <u>competes in 2-4 local (HS or NENSA) races, 6-8 regional (Eastern Cup) races, and NE J2 Champs and/or JO's</u>       | <u>competes in 4+ local (HS or NENSA) races, 8 regional (Eastern Cup) races, and EHSC and/or JO's</u>   |
| <b>race day approach</b>         | n/a                                      | skis course with parent or coach and peers before race              | skis course with parent or coach and peers before race                    | <u>skis course with coach and peers before race; works with coach to plan race strategy; skis after race</u> | <u>uses course preview to develop race strategy; sets and shares race-day goals; develops warm-up plan; cools down</u> | <u>race day planning includes methods for dealing with interruptions and maintaining focus during race; follows established warm-up and cool-down plan</u>      |

underlined text: competency/marker maps to this age group's section in USSA's "Cross Country Athlete Competencies" (blue = marker appears in USSA's age 12&under; green = 13-15; red = 16-20)

# **Bill Koch League Nordic Racing Program**



## **Handbook**

**2010 - 2011**

## For the Love of Our Children

*There is hardly a higher calling than raising our children. The experiences children have growing up come from choices, behaviors and attitudes of adults in their lives, and these experiences become the very foundation of the rest of their lives. By exposing our children to cross country skiing, we can help build in them a love of health, sport, nature, winter and freedom that will enhance their lives.*

*A love of skiing will be a lifetime friend for our children. Free heel skiing lets the body find fluidity and efficiency over snow. Under our own power we glide and float through whiteness. Who say people can't fly?*

*A love of health will give our children a standard for mental and physical fitness. Nordic skiing requires we use our whole bodies, strengthening our cardiovascular systems in addition to our muscles. The simplicity and purity of the XC motion allows each skier to focus on the mind-body connection.*

*A love of sport, competitive or recreational, opens the door to fun, play and joy. Positive skiing experiences for all our children are paramount. Not everyone can come in first, but everyone can challenge him or herself, learn from experiences, encourage each other, and celebrate together.*

*A love of nature connects our children to the world. When we ski, we work with nature, we dress and wax for the day, we choose trails and routes that make sense in the conditions, and we strive to move efficiently through the landscape. As our reward, we witness nature's beauty and power: in the woods, on mountain tops, over frozen lakes and rivers, and above us in the storm, stars or sun that occupy the sky.*

*A love of winter allows our children to live fully all year long. Many people insulate themselves from winter, but skiers revel in the snowy season. They get outdoors, they make their own warmth, they breathe deeply, and they sleep well at night.*

*A love of freedom leads children to self expression, respect for others, and curiosity which will enrich every aspect of their lives. There is something liberating about donning skis and floating over the snow... Free the heel and the mind will follow!*

All for the love of our children,  
Kate and Bill Koch  
BKL Festival Booklet, 2007



# Bill Koch League Nordic Racing Program

## REMINDERS

- \* The primary goals of the program are to have fun in a safe learning atmosphere that allows participants to become better skiers and ultimately fall in love with the lifelong enjoyment of Nordic skiing!
- \* Please be sure your children arrive on time to practice. If you do arrive late, be certain that the coach knows you have arrived; on some days the groups depart from the stadium area right away. Skiers arriving late may not be able to find their group without assistance from their parents.
- \* Please be considerate regarding timely pickups at the end of practice.
- \* Label *all* of your child's gear with their name!
- \* Ford Sayre Skiing hopes that your child wants to be at practices and races. If this is not the case, please talk to the Program Heads or their coach immediately.
- \* Contact the Program Heads or the coach right away if you have a concern requiring their attention.
- \* Remind your child to treat all coaches and team members with respect and to positively support each other during practice and at races.
- \* Endeavor to learn about waxing and ski preparation. Involve your child!

**<http://www.fordsayre.org>**

## Contact Information

### Program Head (1&2day)

Jane Henry  
Hanover NH  
(603) 643-8866 (h)  
[jhenry@valley.net](mailto:jhenry@valley.net)

### Program Head (3 day)

Lars Blackmore  
Norwich VT  
(802) 649-8914 (h)  
[l111@ameridane.org](mailto:l111@ameridane.org)

### Head Coach

Scottie Eliassen  
Lyme NH  
603.795.3165 (h)  
[Scottie.Eliassen@Dartmouth.EDU](mailto:Scottie.Eliassen@Dartmouth.EDU)

## Important Dates 2010/11

- *Sunday Oct 24*, 5-8 pm. Ford Sayre sign up night, Tracy Hall, Norwich, VT.
- *Sat Oct 30*, 10 am-4 pm. Dartmouth Ski Team Sale, Collis Building on campus.
- *Sun Nov 7*, 12–2 pm. Ford Sayre Ski Sale, Richmond Middle School, Hanover, NH
- *Tues Nov. 16*, 3:30-4:30 practices begin with dryland training (no skis needed!), which continues until there is snow, 2 days per week (3<sup>rd</sup> day begins in Jan for those in the 3 day program). 1<sup>st</sup>/2<sup>nd</sup> graders will begin practices on Tues. Nov. 30<sup>th</sup>.
- *January 1*, New Year's Festi-vent at Thetford Academy.
- *Saturday, February 19*: Ford Sayre Silver Fox Trot (BKL race), Hanover NH (our local event)
- *Friday-Sunday, Feb 25-27*: Bill Koch Festival, Rikert Ski Center, Ripton VT
- *Thurs Feb 24*: Last practice for 2 and 3 day programs.

**For the Schedule, Updates and Additional Information see:**

[www.fordsayre.org](http://www.fordsayre.org)

# Welcome to Ford Sayre Nordic Development!

Nordic skiing is a lifelong sport offering recreational, social, fitness, and competitive opportunities. The Ford Sayre Bill Koch League Nordic Development Program provides expert, experienced coaching for young skiers in both freestyle and classical techniques. Participation in the Bill Koch series of races is encouraged.

Bill Koch is America's best-known Nordic skier, having won a Silver medal at the 1976 Winter Olympic Games. Bill grew up in southern Vermont and his years of dedication to making himself the very best he could be are an inspiration to Bill Koch League (BKL) skiers across the country. Many of our skiers enjoy the thrill of meeting Bill Koch in person at BKL Festivals.

Bill Koch League competitions are designed to teach each young athlete to compete to the best of his or her ability. Success is measured by effort and not by victory, and children are encouraged to gauge their own progress, not to compare themselves to others.

## Ford Sayre History

Who was Ford Sayre? Though born in Glen Ridge, New Jersey, Ford K. Sayre was a New Englander at heart. He learned to ski at Dartmouth College as an undergraduate (Class of 1933), and even then he encouraged friends to take up the infant sport. Ford's love of the outdoors and the spirit of New England kept him in New Hampshire after graduation, and he continued his close association with the College through the Dartmouth Outing Club. It was on a joint Dartmouth-Smith College trip to Mt. Moosilauke, organized by him, that he met his future wife, Peggy.

During the depression years, Ford Sayre worked at the Hanover Inn. It occurred to him that he might stimulate the Inn's winter business by making ski lessons available to children of guests. Peggy Sayre, an accomplished skier in her own right, joined Ford in the early ski school venture.

At the same time, Ford recognized that many local children were unable to learn to ski or to afford the simple equipment of the day. He decided to set up a ski school for rural children and did so at a hill in Hanover Center, New Hampshire.

Ford Sayre enlisted in the Army Air Corps in August 1942. His learn-to-ski program continued under Peggy Sayre's supervision, with frequent advice and encouragement from Ford in his letters home from his Spokane, Washington base. On July 23, 1944, at age 34, he was killed in a crash during a War Bond Drive exhibition.

After the war, through the efforts of Peggy Sayre and other local organizers, the Ford Sayre Memorial Ski School was formed. In the winter of '45-'46, hundreds of children joined the classes. In 1950, a variety of children's skiing organizations in the Hanover area merged their activities into the Ford K. Sayre Memorial Ski Council. Though there have been some changes, the Ski Council has never lost the inspiration for the kind of instructional program that was the dream of Ford K. Sayre.

## **Organizational Structure**

The BKL Nordic Racing Program is just one of several instructional, recreational, and competitive programs that operate as part of the Ford Sayre Memorial Ski Council, including alpine recreation, alpine racing, the Ford Sayre Academy, snowboarding, jumping, Nordic recreation, high school Nordic racing, freestyle and the Ford Sayre Club (for families and skiers of all ages). Each program is overseen and coordinated by a director, who serves on the Ford Sayre Memorial Ski Council.

Beyond the Upper Valley, the New England Nordic Ski Association (NENSA) is the parent organization of the New England Bill Koch League. Bill Koch League skiers are the youth skiers of NENSA. NENSA works to create and sustain a vital and active skiing community in New England, and provides support for BKL members in the form of annual membership benefits along with a range of educational and competitive programs directed at individuals and clubs. NENSA maintains a very informative website ([www.nensa.net](http://www.nensa.net)), with news, schedules, and links to other useful Nordic sites.

Ford Sayre Nordic Racing is in the Central Vermont District of the New England Bill Koch League (BKL), along with clubs based in Woodstock and Mountain Top. Mary Ann & Jim Levins chair the Central Vermont District.

## **Importance of Family Participation**

Participants' families play an important role in the success of the Bill Koch program. A successful ski experience for a child requires organization and enthusiasm on the part of parents. In addition to the equipment and clothing required to enjoy Nordic skiing, we are dependent on parents to provide transportation to practices and races and to be there for their child—as well as for all the children—before, during, and after each race. With a supportive family the experience is heightened dramatically.

There are many opportunities for parents to volunteer their time and talents to the Ford Sayre BKL Program. Our big need is for the Silver Fox Trot home race, which is completely run by parent volunteers. Parents can fundraise, register racers, assign bibs, provide food, time the race, monitor the course, help keep racers warm in the start line, or tabulate results. Experience or skiing ability are not required for most jobs! Parents can also help at “away” races with carpooling, waxing, skiing the course, helping at the start, providing snacks, and just creating a fun, supportive atmosphere.

We hope that some of the parents who are accomplished skiers might be able to teach a parents’ clinic, or offer a waxing clinic. Some of the more experienced families have offered to be mentor families, helping families new to the program, providing advice, easing anxieties, and answering questions. We could also use a carpool coordinator.

We’d love to hear your ideas about any way that you’d like to contribute to the program!

## Communication

You can always call Jane Henry (603-643-8866), Lars Blackmore (802-649-8914) or Scottie Eliassen (603-795-3165) with your questions, comments, suggestions, or concerns. We are here to make this the most positive experience possible for your child, and your family.

We will use e-mail extensively to communicate during the course of the season, so let us know if this doesn't work for you. You are welcome to reply with any questions, or e-mail us anytime (Jane at [jhenry@valley.net](mailto:jhenry@valley.net) , Lars at [llll@ameridane.org](mailto:llll@ameridane.org) or Scottie at [M.Scottie.Eliassen@Dartmouth.edu](mailto:M.Scottie.Eliassen@Dartmouth.edu) .

## Practices

Practices are held every Tuesday and Thursday afternoon, from 3:30 to 4:30 PM, except for 1<sup>st</sup>/2<sup>nd</sup> grade skiers who meet only on Tuesdays. 7<sup>th</sup>/8<sup>th</sup> and some 5<sup>th</sup>/6<sup>th</sup> grade skiers will also meet on Fridays with the 3 day program. We start in late fall with dryland training. Kids should come dressed in athletic clothes and shoes (running shoes/light hiking shoes) for a variety of dryland activities, including games, running, and soccer. When the snow flies, skiers are assigned to practice groups according to ability and grade. We generally meet in the Oak Hill parking lot at Storrs Pond, form small groups with one or two coaches for each group, and head off on the trails. An alternative practice location is Garipay Field (across Rt. 10 from the Golf Course; south side of Reservoir Rd). *It is extremely important to arrive promptly at 4:30 to pick your child up from practice.* Coaches should not have to wait for late parents, but more importantly, children can get cold very quickly after exerting themselves for an hour.

Generally Tuesday is freestyle (skating) day and Thursday is devoted to classic skiing, although this schedule may vary depending upon snow and grooming conditions. We will try not to change the schedule after ~6pm the day prior to practice, but sometimes changes are unavoidable. Notification will occur by e-mail, so please let us know if you prefer to be notified another way.

Please try to arrive at practice a few minutes early, with skis adequately glide waxed and clean: waxed full-length for freestyle practice, and just tips and tails for classic skiing. Kick wax should go on just before practice begins. For those new to Nordic skiing don't worry... basic waxing is easy and fast, and you'll learn how to do all of this during the season. Coaches are always willing to help with kick waxing for classic skiing. If you DO need help preparing skis for a classical practice, be sure to arrive early so as not to hold up the group.

Practice is rarely cancelled, except in extreme weather conditions. Practices are *not* held over Christmas vacation, but *are* held during February vacations, during which attendance is optional. In the event practice is cancelled, you will be notified via e-mail and a notice will likely be posted on our web site. Every attempt will be made to decide and notify families by noon of the day of the cancelled practice. If the weather is questionable, please check your e-mail or the web site before bringing your child to practice. As always, parents have the final say about whether to send their child to practice. If you cannot ensure he/she will be adequately protected from the elements, then please keep them home.

## Clothing

December and January practices can be cold, but Nordic skiing is a strenuous activity that generates a lot of body heat. Children need hats and gloves, and should dress in non-cotton layers they can shed to maintain an even body temperature. They'll also need warm dry clothing to put on once practice ends to avoid becoming chilled. We can help you make your way through the many products available.

Team uniforms and jackets for racing are available for order at registration or through Scottie Eliassen on a first come, first serve basis. While the purchase of team clothing is completely optional, many children love having team jackets when they attend races.

## Equipment

Beginning racers should have one pair of waxable “combi” skis to use for both freestyle and classic skiing, and one pair of poles that are about shoulder-height. More serious racers may want to have two sets of skis, one for each style of skiing, and two sets of poles. All of the skiers need only one pair of combi boots. There will be an equipment exchange before the season begins where skiers can get advice on equipment, as well as swap, purchase, or sell used equipment and uniforms. \*1<sup>st</sup>/2<sup>nd</sup> grade skiers only need waxless skis since they will focus on classical more than skating\*.

The 3<sup>rd</sup>/4<sup>th</sup> grade program has a few complete packages of combi skis, poles and boots available for seasonal rental. Contact Jane Henry for details.

*All items brought to practice – including skis, boots, poles, wax, tools, and uniforms – should be labeled with your child’s name. A piece of duct tape on the pole makes a good writing surface.*

## Preparing Skis for Practices and Races

We encourage parents not to place too much emphasis on waxing. Glide waxing allows a wider margin for error (in general), but under many conditions there is also a margin with kick waxing. The whole waxing process intimidates many skiers and their parents, but there will be ongoing opportunities to learn about waxing during the season. We want the children to enjoy learning to wax, and to take pride in having prepared their skis themselves. Simply keeping their skis clean (e.g., with a citrus-based cleaner) is an important job for young skiers. Please see that your skier(s) arrives at freestyle practices and races with their skis glide waxed with the appropriate wax for the temperature. For classic days the tips and tails of the skis should have glide wax, and coaches and skiers can put on the kick wax together just before skiing. Coaches are happy to answer your questions and will have a comprehensive Ford Sayre wax box at races.

## Wax and Tools

Skiers will be encouraged to learn ski preparation and waxing skills. They should try to use their own wax at practice and learn to kick-wax their own skis – but there will *always be wax and help available*.

Build a collection of tools and wax gradually as you build experience, and don't be overwhelmed by the incredible variety (and cost) of choices available. The following are some suggestions. One concise source of additional information is the *Swix Sport Nordic Tech Manual*, and the websites linked from our Program page will lead you to way more information than any BKL skier needs!

### *Tools and Supplies*

- An adjustable-temperature iron with a smooth (not steam-vented) surface
- Two scrapers (one for kick wax, one for glide wax)
- Cork (synthetic is best)
- Nylon brush (for finishing touches on glide wax)
- Citrus-based cleaner (for wax removal)
- Roll of Fiberlene cloth (for wax removal)
- Torch (optional, for handling klister and binder)
- Ski vises or Waxing Profile (optional, but makes waxing so much easier -- creative versions can be home-made)

### *Glide waxes*

These are ironed into the ski base, over the entire length for skating, and all but a 'wax pocket' for classical skiing. Start simply, if you are new to waxing. Starter kits include just a few colors, which cover a wide variety of conditions. Many people find it easiest to learn the colors and characteristics of waxes from one manufacturer. Although there are many firms producing great wax, Swix brand is widely and locally available (including Omer & Bob's team night). We do not advocate the use of fluorocarbon waxes for racers in the Bill Koch age group. These waxes are more expensive, and we try to discourage the attitude that they are necessary. While having the right wax for the snow and temperature conditions is important, children (and parents!) can become overly anxious about it. We recommend emphasizing proper base preparation (cleaning, use of brushes) and frequent waxing with hydrocarbon waxes.

### *Kick waxes*

Most of the time, selecting a wax that will work well is not difficult. Things become trickier when the air temperature fluctuates, or when the ski trail passes in and out of sun and shade.

### *Klister*

Under some conditions, klister kick wax works like a dream. The key is your attitude: live (and ski) for the moment, and worry about the sticky clean-up later! As a general rule though, we will not use klister at BKL practices (excepting just prior to the Festival). At races the coaches will be intimately involved with selecting and applying the right klister for the race.

## Trail Etiquette

Some cross-country ski trails are one-way, or have a preferred direction of travel. It is most considerate – and safest – to ski in the recommended direction. During races, travel on the race course is allowed ONLY in the direction of the race. Courtesies on the trail include: making space for skiers who are skiing faster than you to pass you on the trail; politely passing skiers who are moving more slowly than you are; and leaving plenty of space between you and the person in front of you, particularly on downhills.

'Tracking' is reserved for race situations only. During the majority of a race, an overtaking skier has right-of-way. When a faster skier calls 'track' or 'hup' as s/he comes upon a slower skier, the slower skier should yield the track by moving aside to let the faster skier go by. We do not use this system during regular Ford Sayre practices.

## Ski For K's

“Ski for K’s” is an exciting program designed to help motivate our junior skiers to ski more and have fun keeping track of their kilometers (or hours) skied. A fun twist is that the program is open to parents and coaches as well – there is something for all of us! Here is how it works: During the ski season, those who choose to participate will set personal goals they wish to achieve in terms of distance (or time) on skis. Participants keep track of their skiing using our Ski for K chart. At the end of the season, pins *unique to Ford Sayre* will be awarded based on the level achieved. As an incentive to race, race distances are doubled, and anyone skiing in his or her very *first* race receives TRIPLE distances! Our hope is that this becomes a fun incentive for participants to keep track of their skiing, set goals for themselves, and experience the challenge of meeting those goals. Participation in the program is optional, but it is designed so that anyone attending most practices, and skiing a bit on their own, will earn a pin.

## Racing

An important theme of our program is racing, and while participants are certainly not required to race, we do encourage the competitive aspect of the sport, because it's fun! Racing groups are:

- 1<sup>st</sup>/2<sup>nd</sup> grade
- 3<sup>rd</sup>/4<sup>th</sup> grade
- 5<sup>th</sup>/6<sup>th</sup> grade
- 7<sup>th</sup>/8<sup>th</sup> grade

There is a Bill Koch race nearly every weekend during January and February, and you are free to participate in any and all of the races, not just those within our district. Ford Sayre coaches will be at the races sent out to families in a list. The number of races your child attends is completely up to you and your child – some children choose to attend every race, others participate in a few, while some children opt to postpone racing for another year. If your child is a little tentative about racing, encourage him or



her to come watch the first race and cheer on a teammate (bring equipment for a sudden change of heart). You may be surprised by how low key these races are.

Parents and families are always welcome to ski the trails at races before and after an event, but some ski areas request that you purchase a day pass (usually at a reduced cost). In fact, many families enjoy a long ski together following the race. During the event it is often fun to ski out on the course to watch your child and cheer them on, but please be careful to stay out of the way of racers, and ski in the direction of the race. If you wish to be on the course during the race, you must be on skis. You will usually be able to *walk* around the start/finish area, but not on the course.

Many parents are interested in carpooling to races, as they can often be an hour or more away. Please let us know if you'd like to help those interested in carpooling get together.

Here is a general checklist for racers that will be useful to both the beginning competitor and the seasoned veteran.

- Most importantly: Get organized the night before. Have directions and a good sense of how long it will take to get to the race. Decide on a departure time and plan to get up early enough to eat a good breakfast. Listen to a weather report and find out about likely snow conditions (if you're unsure, call a teammate or one of the coaches). Glide wax your skis for the appropriate technique (freestyle or classic) and have them ready with your boots and poles. Pack your ski bag with hat and gloves, wax box, food, plenty of water, a few dollars for the registration fee and snack, sunscreen, and a change of clothes (including dry socks). Lay out your long underwear, racing uniform, warmups, jacket, and snow boots. The more organized you are the night before, the more relaxed you can be the morning of the race – and the more fun you'll have.
- Fill out and print an entry form at home, if possible, rather than just before the race.
- Arrive at least one hour before the race begins!
- Find where the Ford Sayre group is assembling. Check in with the coaches so they know you are there, and find out what is happening for waxing (classic races) and touring the course (all races).
- Be prompt in registering. Parents must sign the race entry release form.
- Give yourself enough time to ski some or the entire course before the race begins (coaches will be available to ski the course with you, and a starting time will be set at the practice preceding the race).
- Be waxed and ready to go before start time. While racers should be responsible for their own equipment as much as possible, there will always be at least one coach available to help.
- Don't lose your race bib under a car seat, or forget to put it on.
- Be at the start line or near the start line a few minutes before your bib number is called.
- STAY WARM while waiting for your start—wear extra clothes that you can remove quickly, ski near the start area, jump up and down.
- Listen for the starter's instructions.
- Wait for the “go” signal.
- “Track” (ask other skiers to let you ski by) with courtesy.
- Yield to other skiers when they overtake and “track” you. You should not have to be asked twice.
- Clear the finish area after you finish.
- Give your bib to the bib collector.
- Change into dry, warm clothes right away; get water.
- Don't talk to the timing officials

- Don't “pace” other racers (this applies to parents, coaches, and teammates). This is when non-racers ski alongside racers or behind them or in front of them for more than 25 meters. This is against the rules and could cause the racer to be disqualified.
- Keep clear of the tracks when not racing.
- SKI IN THE DIRECTION OF THE RACE when you ski on a racecourse during the race.
- Cheer for everybody.
- Have FUN!

## The Bill Koch Festival

The racing season culminates in the annual Bill Koch Festival, which for many skiers is the season highlight. The Festival is a two-day, end-of-the-season event held in a different New England state each year. There is always a day of classic races and a day of freestyle races, with one relay event, with teams made up of skiers from throughout our district. This year the Festival will be held February 26 and 27 at Rikert Ski Center near Ripton, VT. It is fun for the whole family to go for the weekend. You are encouraged to make your lodging reservations early, so expect to receive an e-mail about this. (go to <http://bklfestival.nensa.net/> for more information). Ford Sayre's only Festival policy is that you should aim to complete at least three regular-season races to participate. With this vital experience, skiers are better prepared to go with the flow at such a big event. Also, the season's race results will determine placement on a relay team.

The Festival is a wonderful family event. Trails are open for skiing before and after the events, the atmosphere is festive with lots of music and there is a big dinner for all on Saturday evening with an enormous raffle. Families get to know each other, the kids really come together as a team, and it is a great way to finish up the season.

## Note to Families / Mentoring

One of the great ways families support the program is by mentoring each other and reaching out to new families – to share experiences and tips, to answer questions about practice routines and races, to share rides, to share the joy of race days together, and ease new families into the BKL routine. We encourage parents to call each other with questions, get to know each other at pick-up time, and build relationships that will support parents as well as skiers through the season. If you're an experienced parent, particularly a family who remembers the feeling of being new, we encourage you to reach out to new parents. And if your family is new to BKL skiing – don't feel afraid to call another parent to ask, “how did you manage it?” If you would like to be a mentor parent(s) for a family new to the program, or if you would like to be assigned mentor/contact family, please let us know.

## Resources

- **Websites**

There are Nordic skiing websites of all types. Two important sites to start with:

[www.fordsayre.org](http://www.fordsayre.org) link to the Nordic Racing Program

[www.nensa.net](http://www.nensa.net) NENSA's official site, offering comprehensive information and news on Nordic skiing in New England, including a race schedule. Look for the link to the BKL program for information on our BKL races. But there is also MUCH more information about New England Nordic skiing in general.

- **Local stores** that have equipment, supplies, and knowledgeable staff:

Omer and Bob's, in Lebanon, NH on the mall downtown. (Tel 603-448-3522)  
[www.omerandbobs.com](http://www.omerandbobs.com).

The Nordic Skater, in Norwich. Visit their shop on Rte 5 south of Norwich VT. (Tel 802-649-3939 or Toll-Free 866-244-2570) [www.nordicskater.com](http://www.nordicskater.com)

Golf and Ski Warehouse in West Lebanon NH. A good source for wax, clothing and accessories.

Woodstock Nordic Center, Rte 106 Woodstock VT 05091. (Tel 802-457-6674)  
[www.woodstockinn.com](http://www.woodstockinn.com)

West Hill Shop in Putney, VT. (Tel 802-387-5718) [www.westhillshop.com](http://www.westhillshop.com)

- **Catalog equipment sources**

Akers 207-392-4582 or [www.akers-ski.com](http://www.akers-ski.com) Akers has been a wonderful resource for decades, offering lots of kids' stuff and advise over the phone; they often have older models or non-mainstream brands, being sold for great prices.

Reliable Racing 800-223-4448 [www.reliableracing.com](http://www.reliableracing.com)

Eagle River Nordic 800-423-9730 [www.ernordic.com](http://www.ernordic.com)

- **Waxing Books**

A number of short books on ski preparation and waxing are available. At Omer & Bob's Team Night, check out the *Swix Sport Nordic Tech Manual*.

- **Local ski sales/swaps** where you can find discounted equipment, both new and used

Dartmouth Ski Team Sale Saturday, October 30, 10-4pm, at Collis

Ford Sayre Ski Sale Sunday, November 7th, 12-2:00 pm, Richmond Middle School Gym. If you help with two or more shifts you can attend the workers' sale and get first choice of the equipment. Contact is [Tracey.Walsh@dartmouth.edu](mailto:Tracey.Walsh@dartmouth.edu)

Ford Sayre Nordic Racing Equipment Exchange see the website: <http://www.fordsayre.org>

Ford Sayre BKL Ski Rental Program – a small number of complete Combi ski packages for 3<sup>rd</sup>/4<sup>th</sup> grade are available to rent for the season. Contact Jane Henry for details on availability and sizing.

Also, Ski Swaps happen throughout October and November all across New England, so keep your eyes open!

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# Cross Country Training System

| Foundation Stage  |  | Pre and Post Puberty   |  |  | World Class Performance Full Maturation  |
|---|--|--|--|--|--|
| PHASE 1   | PHASE 2  | PHASE 3  | PHASE 4  | PHASE 5  | PHASE 6  |
| <p><b>Biological Age</b><br/>Pre Puberty</p> <p><b>Age</b><br/>2–6 years old</p> <p><b>Play Age</b><br/>1–4 years in sport</p> <p><b>Participation</b><br/>Ski around 1–3 days a week, or as much as enjoyable<br/>Emphasize outdoor recreation<br/>Parents encourage play versus training<br/>Participate in all sports, including balanced based sports like gymnastics</p> | <p><b>Biological Age</b><br/>Pre Puberty</p> <p><b>Age</b><br/>6–10 years old</p> <p><b>Training Age</b><br/>1–4 years in sport</p> <p><b>Participation</b><br/>Ski 2–6 days per week, or as much as enjoyable<br/>Emphasize outdoor recreation<br/>Parents emphasize activity versus training<br/>Fun races<br/>Play many other sports</p> <p><b>Sensitivity Windows</b><br/>Males: Suppleness, Speed #1, Beginning of Skills<br/>Females: Suppleness, Speed #1, Skills</p> | <p><b>Biological Age</b><br/>Pre Puberty<br/>(Before Growth Spurt)</p> <p><b>Age</b><br/>Girls: 10–13: (J4–J3)<br/>Boys: 11–14: (J4–J2)</p> <p><b>Training Age</b><br/>4–8 years in sport</p> <p><b>Participation</b><br/>Ski 4–6 days per week<br/>Emphasize outdoor recreation<br/>Introduce fun competition period: Jan.–April<br/>Number of race starts: 5–15<br/>Play many complementary sports</p> <p><b>Sensitivity Window:</b><br/>Males: Skills, Stamina, Speed #2<br/>Females: Skills, Stamina, Speed #2, Strength</p> | <p><b>Biological Age</b><br/>Puberty<br/>(Growth Spurt)</p> <p><b>Age</b><br/>Girls: 11–14: (J4–J2)<br/>Boys: 12–15: (J4–J2)</p> <p><b>Training Age</b><br/>Train 4–6 days, 5–9 sessions / week</p> <p><b>Participation</b><br/>Emphasize fun training<br/>Competition Period: Dec.–April<br/>Number of race starts: 10–20<br/>Play complementary sports<br/>Annual Training Volume: J4: Emphasize daily skiing, J3: 300–400, J2: 400–500</p> <p><b>Sensitivity Window</b><br/>Males: Stamina, Speed #2<br/>Females: Stamina, Speed #2, Strength</p> | <p><b>Biological Age</b><br/>Post Puberty<br/>(After Growth Spurt)</p> <p><b>Age</b><br/>Girls: 12–16: (J4–J1)<br/>Boys: 14–17: (J2–J1)</p> <p><b>Training Age</b><br/>6–11 years in sport</p> <p><b>Participation</b><br/>Train 5–6 days, 6–10 sessions / week<br/>Competition Period: Nov/Dec–April<br/>Number of race starts: 20–30<br/>Play complementary sports that do not impede year-round training<br/>Annual Training Volume: At least 500 hours by age 17</p> <p><b>Sensitivity Window</b><br/>Males: Stamina, Speed #2<br/>Females: Stamina, Speed #2,</p> | <p><b>Biological Age</b><br/>Full Maturation</p> <p><b>Age</b><br/>Female: 16+ J1+<br/>Male: 17+ J1+</p> <p><b>Training Age</b><br/>Minimum 10+ years in sport</p> <p><b>Participation</b><br/>Ski / Train 6 days a week<br/>Competition Period: Nov.–April<br/>Number of race starts: 20–40<br/>Annual Training Volume: 16–17: 450–500, 18–19: 550–600, 20–21: 600–650, 22+: 650+</p> <p><b>Sensitivity Window</b><br/>Males: Strength<br/>Females: End of Strength</p> |
| Training Emphasis   |  |  |  |  |  |
| Emphasis on play, fun, skiing and balance.  | Emphasis on play, fun, basic agility, balance and coordination. Incorporate activities that develop explosiveness (1-10 sec) and general endurance.  | 2–4 training sessions per week in season. Further development of previous components. Emphasis on aerobic training and speed play. Incorporate own body weight training and body awareness training.   | 5–7 training sessions per week in season, including some two-session days. 4–6 training sessions per week out of season. Athlete implements a periodized training program that places stress on the body and subsequently gives it time to recover. Athlete uses both low-intensity aerobic training and high-intensity aerobic and anaerobic training to improve race fitness.  | 2–3 training or recovery sessions per week in season. Strength and power, introduce progressively more anaerobic training, endurance, complex agility and balance.   | 6–10 training sessions per week in season, including some two-session days. 7–12 training sessions per week out of season. All components of the athletes training are now fully periodized and individualized.  |
| Technical and Tactical Emphasis   |  |  |  |  |  |
| Has fun on snow<br>Games and play on skis   | Has fun on snow<br>Games and play on skis  | Demonstrates basic athletic stance on skis<br>Exhibits natural body mechanics on skis<br>Is eager to explore all different types of terrain and snow conditions<br>Able to balance on one ski while skiing gradual downhill<br>Understands difference between running, classic skiing, and skating<br>Can herringbone and snowplow   | Good body position, balance and weight shift<br>Demonstrates ability to maintain appropriate balance and stance while skiing in all terrain and under a variety of conditions<br>Understands concept of changing tempo to suit conditions and terrain<br>("changing gears ")<br>Discusses racing strategy and pacing with a coach  | Refines technique and tactics after growth spurt<br>Integrates increased strength, power and body size to achieve a stronger skiing technique<br>Effective use of different techniques to correspond to changing terrain and conditions<br>Changes techniques smoothly and quickly<br>Understands concept of changing tempo to suit conditions and terrain<br>("changing gears ")<br>Discusses racing strategy and pacing with a coach   | Technical Skills<br>Masters all techniques and develops personal style   |



# Cross Country Training System

| Foundation Stage |         | Pre and Post Puberty |         |         | World Class Performance Full Maturation |
|------------------|---------|----------------------|---------|---------|---|
| PHASE 1          | PHASE 2 | PHASE 3              | PHASE 4 | PHASE 5 | PHASE 6                                 |

| Equipment Selection and Preparation  |   |  |  |   |  |
|--|---|--|--|---|--|
| <p><b>Skis:</b> Skis on one pair of waxless skis, soft flex, and between nose and forehead in height</p> <p><b>Boots:</b> Uses boots that are comfortable and warm</p> <p><b>Poles:</b> Uses one pair of poles for all techniques, or skis with no poles</p> <p>Poles should fit snugly under the armpit</p> <p><b>Ancillary Equipment:</b> Clothing should provide appropriate protection from the elements and keep children comfortable for extended periods of skiing to ensure enjoyment of sport</p> <p>Eye protection should be worn at all times when skiing</p> <p>Uses sunscreen</p> | <p><b>Skis:</b> Skis on one pair of skis, soft flex, and between nose and forehead in height. The skis are to be properly waxed by the athlete, parent or club leader for every day of skiing</p> <p><b>Boots:</b> Uses boots that allow for natural ankle movement, and sufficient warmth</p> <p><b>Poles:</b> Uses one pair of poles for all techniques</p> <p>Poles should fit snugly under the armpit</p> <p><b>Ancillary Equipment:</b> Clothing should provide appropriate protection from the elements and keep children comfortable for extended periods of skiing to ensure enjoyment of sport</p> <p>Eye protection should be worn at all times when skiing</p> <p>Uses sunscreen</p> | <p>freestyle skis for racing and training. Skis should be selected to fit the skiers' weight and height according to manufacturer's recommendations.</p> <p>The skis are to be properly waxed by the athlete, parent or club leader for every day of skiing</p> <p><b>Boots:</b> Uses boots that allow for natural ankle movement</p> <p><b>Poles:</b> Uses one pair of poles for all techniques at beginning of phase, but uses two pairs—one for skate and one for classic later in the phase</p> <p>Poles should fit snugly under the armpit</p> <p><b>Ancillary Equipment:</b> Clothing should provide appropriate protection from the elements and keep children comfortable for extended periods of skiing to ensure enjoyment</p> <p>Eye protection should be worn at all times when skiing</p> <p>Uses sunscreen</p> | <p>Adheres to USSA and FIS rules for all equipment selection</p> <p><b>Skis:</b> May be using classic and freestyle skis for racing. Skis should be selected to fit the skiers' weight and height according to manufacturer's recommendations. A skier does not need more than one pair of skate and one pair of classic skis. Fit is critical! No more than three pair for each technique should be owned by athlete and two of each is more appropriate. Is responsible for maintaining skis at all times</p> <p><b>Boots:</b> Classic and freestyle specific boots may be used</p> <p>Individual adjustments or modifications are made for all anatomical needs for boots to fit properly</p> <p><b>Poles:</b> Should be using poles specifically for classic or freestyle. Classic poles should be between armpit and mid shoulder in height. Skate poles should extend to the chin or mouth</p> <p><b>Ancillary Equipment:</b> Hill-bounding poles should be roughly the height of skier's belly button</p> <p>Athlete wears appropriate footwear and clothing during all physical activities</p> <p>Athlete has a backpack for extra clothing, water bottle, water bottle carrier, waxing equipment, etc.</p> <p>Athlete has long underwear, windbreaker, warm-up jacket and pants, hat, gloves, racing gloves, wind briefs and/or jog bra</p> | <p>Adheres to USSA and FIS rules for all equipment selection</p> <p><b>Skis:</b> 1) Uses skis for classical and skate, cold, medium and warm conditions. Fit is essential and quality over quantity is emphasized</p> <p>2) The athlete is responsible for all ski preparation and maintenance. Skis are properly waxed and maintained at all times</p> <p>3) The athlete carries appropriate kick wax and cork or extra roller ski carbide tips while training</p> <p><b>Boots:</b> Classic, skating and pursuit if required by race circuit</p> <p><b>Poles:</b> Should be using poles specifically for classic or freestyle. Classic poles should be between armpit and mid shoulder in height. Skate poles should extend to the chin or mouth</p> <p><b>Ancillary Equipment:</b> Both classic and skate roller-skis</p> <p>Helmet for roller-skiing is mandatory</p> <p>Uses road-tips on poles when roller-skiing</p> <p>Bright and reflective clothing for roller-skiing is mandatory</p> | <p>Adheres to USSA and FIS rules for all equipment selection</p> <p>Is responsible for having all equipment in perfect working order, to World Cup standards, at all times</p> |



# Cross Country Training System

| Foundation Stage   |  | Pre and Post Puberty   |  |  | World Class Performance Full Maturation  |
|--|--|--|--|--|--|
| PHASE 1  | PHASE 2  | PHASE 3  | PHASE 4  | PHASE 5  | PHASE 6  |
| <b>Performance Psychology Emphasis</b>   |  |  |  |  |  |
| Fun, variety, positive reinforcement and perseverance. Positive parental support is essential. | <b>Sampling Years</b><br>Teamwork and sportsmanship. Encourage a balanced lifestyle that encourages healthy habits and promotes success in sport and life. Positive parental support is essential. Families get involved with clubs. Fair play is emphasized | Positive self talk, work ethic, perseverance, goal setting with a focus on the process not results. Encourage the use of imagery and visualizing good technique. Demonstrate teamwork and sportsmanship. Positive parental support and club involvement. Fair play is emphasized | <b>Sampling Years</b><br>Positive self talk, work ethic and perseverance, goal setting with a focus on the process and not results. Fair play is emphasized, and an understanding that performance-enhancing drugs are unethical is imperative | <b>Commitment</b><br>Develop and refine race day plan. Develop mental rehearsal routines, refine goal setting process, what to focus on, what works on race day, develop "athletic plan" to approach training sessions and life. Document through journaling. Parents continue to support the commitment of the athlete in the sport. Fair play is emphasized, and an understanding that performance-enhancing drugs are unethical is imperative | <b>Specialization and Mastery</b><br>Refine performance psychology skills: Imagery; goal achievement; performance planning; attention and focus; self regulatory talk and confidence. Identify optimal performance state. Dealing with competition, risk, failure and fear. Parents continue to support the commitment of the athlete in the sport. Fair play is emphasized, and an understanding that performance-enhancing drugs are unethical is imperative |
| <b>Competition Emphasis</b>  |  |  |  |  |  |
| Competition only exists in the form of games on skis.  | Local competition: innovative with a fun focus on interclub competition. Age-appropriate distances   | divisional championships which may lead to regional events. Age-appropriate distances  | Local racing leads to state and divisional championships which may lead to regional events and Junior Nationals. International experience may be initiated in Canada. Age-appropriate distances  | Appropriate level and number of race starts ranging from local to national and international competition. Age-appropriate distances  | Regional FIS and local USSA club races, Continental Cups, European FIS races, World Junior Championships, U23 Championships, World Cups, World Championships, Olympics   |







## **Cross Country Athlete Competencies (2002 Edit)**

2002 Editors: Chris Grover, Trond Nystad, Peter Vordenberg, Eli Brown, Christine Katzenberger.  
1999 Editors: Luke Bodensteiner, Miles Minson, Christine Katzenberger.

Compiled by the Cross Country Competencies Task Force: Dr. Stephen Johnson, Lester Keller, Tim Ross, Sverre Caldwell, Rick Kapala, Kevin Sweeney, Anne Donaghy, Zach Caldwell, John Estle, Reid Lutter, Bill Sterling, John Downing, Alan Ashley, Christer Skog.

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### **INTRODUCTION**

The process of developing athletic talent spans the entire formative life of an athlete, and requires the consideration of numerous factors. Talent development is a complex interaction between the athlete's inherent physical and psychological abilities at any particular development stage (point in time), and his or her opportunities to capitalize on

**United States Ski and Snowboard Association**



The National Governing Body for  
Olympic Skiing and Snowboarding

Box 100 - 1500 Kearns Blvd  
Park City, Utah 84060

tel 435 649 9090  
fax 435 649 3613

[ussnowboarding.org](http://ussnowboarding.org)

those abilities. A successful development effort must provide these opportunities at the right time.

To define the best development process for the cross country skiing athlete, the U.S. Ski and Snowboard Association has produced a declaration of recommended cross country athlete competencies. The Cross Country Athlete Competencies constitutes an educated assessment of the skills or “tools ” necessary to ski at a world-class level in modern cross-country competition. Simple definition of the skills present in the “end product ” is insufficient, because it is too far removed from the experience of the developing athlete and his or her coaches and parents. A set of guidelines is necessary to define the track and serve as both targets and markers for each step in the process, and these guidelines must work for all levels of skiers.

In order to improve the development of skiing athletes, it is necessary to identify the entire series of steps involved in the process. These steps begin when a young athlete first puts on skis, and conclude as he or she reaches their full potential. At each point in time along the developmental path, the successful athlete will have a certain set of characteristic skills and abilities, each of which follows logically from some earlier set and lead ultimately to a more refined set. That is the essence of these Cross Country Athlete Competencies. It attempts to create a “road map ” from beginning racer to world-class skier by defining the associated skills at each level. We have done this by presenting not only the skills required to be a world-class skier, but by also identifying the desired intermediate skill levels and the appropriate sequence and timing for the appearance of these skills.

The acquisition of skills, and the achievement of success that follows, will occur at different times in individual athlete’s careers. At some point during a given athlete’s career, he or she will reach their full potential.

### **A. Competence: The Concept**

The word “competence ” implies a proficiency in a particular area. Competence does not imply brilliance or mastery, but precision in the execution of a skill. Competence in a skill is necessary to move forward to the next skill and, ultimately, to world-class performance.

In order to advance into the elite fields of world-class performance, the athlete will need to master the many necessary components of the sport included in this document. This list is not all-inclusive, so mastery of all the included skills does not guarantee a world-class level athlete. Similarly, a lack of competence in a particular area will not by itself cause failure. However, a lack of prerequisite skills will limit the foundation for movement toward the top levels of performance.

The sequence of competency progression presented here is designed to accommodate the normal development process. Ideally, athletes will master skills and attain the requisite level of competence at each level before moving on to the next. The capacity of the human body

to perform the skill in this document is age-related, but the relationship between chronological and biological age is approximate. Therefore, the age groups as they are defined here are approximate and can be expected to vary by as much as two years in either direction. It is important that a complete acquisition of skills take place at each level before the athlete moves ahead to specific skills at higher levels.

## **B. Domains of Competence for Cross Country Ski Racing**

Domains are general areas of skill, ability, behavior, or knowledge necessary for athletic achievement in cross-country ski racing. These general areas are: ski technique, physiological preparation, psychological/social behaviors, training/competition behaviors, equipment knowledge, and education. Each domain is further defined by characteristics of that general skill area. Competencies are levels of achievement attained by the athlete in each domain.

The domains were chosen and assigned a particular grouping with care. Each of the domains was chosen because it is indispensable to a total athletic preparation program:

1. The Technical Skills domain encompasses all aspects of the specific skill demands of cross-country ski racing. It includes skiing skills ranging from the basic balanced stance to elite exploration of skate and classic techniques.
2. The Physiological and Motor Skills domain is derived from the fact that elite performance is based on a foundation of physical fitness, strength, power, and endurance. Athletic development begins with a sound base of motor skill learning and continues through the mastery of sport-specific requirements. Inadequate levels of physical preparation severely limit the development of skills necessary to elite skiing performance. A progression of steps, as outlined in this document constitutes a recipe for planning the age-appropriate acquisition of necessary physical abilities.
3. The Psychological and Sociological Skills domain reflects the reality that development is a social process. Athletes develop within the context of sound relationships, particularly with family, fellow athletes, and fellow students. High-level performance at all ages is a profoundly mental activity. Specific mental skills and techniques enhance performance. These skills can be learned, many at an early age. The psychological domain takes on more importance as the level of competition increases.
4. The Training and Competition Performance domain describes competencies in the planning and periodization of training loads and training program content. Purposeful, goal-directed training leads to the most efficient results. Similarly, competition is included in the overall athletic program in a planned, purposeful manner with events and training loads added or deleted at specific points along the time continuum. Competition validates the training program of skill acquisition.

5. The Equipment domain reflects the fact that cross-country ski racing is greatly dependent on the use of the correct equipment. Selection, use, and maintenance of skis, boots, bindings, wax, clothing, and poles is critical to success in the sport. Competence in this area is an important element in an athlete's overall preparation.

6. The Education domain serves to underline the fact that sport-specific knowledge is key in the long-term development of cross-country ski competitors. The end-goal of this education is to provide the athlete with a complete set of tools, such that the athlete can eventually become his or her own coach.

Note: A glossary of terms can be found at the end of this document.

## **The Early Phase**

This is the initial stage of sport involvement, characterized by enjoyment, play, and a gradual acquisition of skills in a social environment that promotes further participation in the sport. This is the time in a child's life to participate in a wide variety of physical activities. This is NOT a time for specialization in cross-country skiing.

### **A. Ages 12 and Under**

#### **1. Technical Domain**

##### **a. Basic Skills**

- (1) Has fun on snow
- (2) Demonstrates basic athletic stance on skis
- (3) Exhibits natural body mechanics on skis
- (4) Is eager to explore all different types of terrain and snow conditions
- (5) Able to balance on one ski while skiing gradual downhill
- (6) Understands difference between running and gliding
- (7) Can herringbone and snowplow

##### **b. Event Skills**

- (1) Skis classic and free technique
- (2) Participates in ski school or ski club program that promotes basic skill competence training

##### **c. Markers**

- (1) Basic cross-country skills
  - (a) Good balance
  - (b) Weight shift
  - (c) Proper body position
  - (d) Rhythm

#### **2. Physiological Domain**

- a. Engages in physical activity 3-5 hours per week in a variety of activities which emphasize balance and coordination such as soccer, dance, gymnastics

### 3. Psychological and Sociological Domain

- a. Goal Setting
  - (1) Enjoys the activity and has fun at play and practice
  - (2) Can verbalize reasons for participation in skiing
- b. Performance planning
  - (1) Not applicable to this age group
- c. Attention and focus
  - (1) Listens to and follows instructions
  - (2) Limits and stops disruptive behaviors when asked
- d. Arousal regulation and relaxation
  - (1) Knows and can demonstrate the difference between a tense and a relaxed muscle
- e. Imagery
  - (1) Learns how to dream
  - (2) Uses imagination in play
  - (3) Exhibits knowledge of the five senses
- f. Self concept, self image, self efficacy
  - (1) Exhibits a sense of belonging to the group or program in which he/she is participating
  - (2) Contributes to the activities of the group in a positive way
  - (3) Attempts to improve, tries new skills willingly and eagerly
  - (4) Participates in a variety of social, educational, and sport activities
- g. Competitive personality development
  - (1) Positive participation in games
  - (2) Enjoys personal and team success
  - (3) Completes all projects and programs

### 4. Training and Competition Performance Domain

Note: Children age 12 and under do not need to participate in structured training, but

Should be encouraged to participate in a variety of physical activities

- a. Recommended Ranges of Cross Country Skiing activity
  - (1) Skis 2-5 days per week from December to March

(2) The content of the skiing time includes the following approximate percentages of activity:

- Undirected skiing 80%
- Skill-oriented games 20%

(3) The training percentage for specific disciplines reflects the following approximate percentages:

- Classic 55%
- Freestyle 45%

(4) Competition starts and levels of competition should reflect the following range:

- 4-6 events
- Club or Youth Ski League level

b. Other Sport activity

(1) Is active in a variety of sports, especially those that will enhance motor skills utilized in cross-country skiing such as in-line skating, alpine skiing, ice hockey, soccer, gymnastics, hiking, biking, and climbing. Enjoys being outdoors.

5. Equipment

a. Skis

- (1) Skis on one pair of skis, soft flex, and between nose and forehead in height
- (2) The skis are to be properly waxed by the athlete, parent or club leader for every day of skiing

b. Boots

- (1) Uses boots that allow for natural ankle movement

c. Poles

- (1) Uses one pair of poles for all techniques
- (2) Poles should fit snugly under the armpit

d. Ancillary Equipment

- (1) Clothing should provide appropriate protection from the elements and keep children comfortable for extended periods of skiing
- (2) Eye protection should be worn at all times when skiing
- (3) Uses sunscreen

6. Education Domain

- (1) Learns about sportsmanship
- (2) Learns ski games
- (3) Introduction to the importance of balance and coordination
- (4) Introduction to basic equipment care

- (5) Introduction to basic glide and kick waxing
- (6) Recognizes the different skate and classic techniques
- (7) Learns to prepare (dress) for the elements

## **The Secondary Phase**

In this phase, the athlete has made the transition from simply participating in the sport for only the enjoyment of the activity to seeking increased levels of skill and sophistication. The athlete exhibits an increase in dedication, a higher level of work volume, and a higher quality work ethic.

### **B. Ages 13 to 15**

#### **1. Technical Domain**

##### **a. Technical Skills in Training**

- (1) Good body position, balance and weight shift
- (2) Demonstrates ability to maintain appropriate balance and stance while skiing in all terrain and under a variety of conditions
- (3) Effective use of different techniques to correspond to changing terrain and conditions
- (4) Changes techniques smoothly and quickly
- (5) Understands concept of changing tempo to suit conditions and terrain (“changing gears ”)

##### **b. Classic Skills**

- (1) Double-pole
- (2) Kick double-pole
- (3) Diagonal stride
- (4) Diagonal stride without poles

##### **c. Freestyle skills**

- (1) Diagonal skate
- (2) Uses V1 skating on both sides
- (3) V2
- (4) V2 alternate on both sides
- (5) Skate without poles

##### **d. Markers**

- (1) Basic cross-country skills
  - (a) Complete weight shift
  - (b) Proper body position
  - (c) Rhythm
  - (d) Basic mechanics

#### **2. Physiological Domain**

- a. Is engaged regularly in cross-training activities which emphasize balance and coordination, endurance, strength, and speed, such as soccer, mountain-biking, running, gymnastics and swimming
- b. Is introduced to structured training
  - (1) Aerobic training
  - (2) Anaerobic training
  - (3) Strength training
- c. Acknowledges different methods of strength training and technique
- d. Eats right
- e. Knows how to stretch
- f. Always warms-up before stretching
- g. Practices effective hydration daily as well as before, during and after training and competition

### 3. Psychological and Sociological Domain

In this phase, goal setting is based on personal improvement, and not necessarily on matching national standards

- a. Goal Setting
  - (1) Sets attainable process goals, and reviews them regularly with coach as the measure of progress
  - (2) Sets goals that are specific and measurable
  - (3) Has a dream goal; has written general long range goals
  - (4) Seeks and utilizes feedback in relation to goal achievement
  - (5) All goals are highly individual and improvement based
- b. Performance planning
  - (1) Is organized and prepared for training
  - (2) Develops and follows a basic race day plan
- c. Attentional focus
  - (1) Develops and utilizes strategies for training and competition
  - (2) Inspects race course prior to competition
- d. Arousal regulation and relaxation
  - (1) Incorporates breathing exercises and other relaxation techniques in training and competitions
  - (2) Successfully participates in group relaxation sessions



- (a) Breathing exercises
- (b) Progressive relaxation

e. Imagery

- (1) Can form visual images to practice suggested outcomes
- (2) Can draw and accurately describe terrain features of courses and trails after an inspection
- (3) Begins to use visualization that incorporates all of the senses
- (4) Visualizes positive past and future performances

f. Self-concept, image, efficacy

- (1) Balances ski sport participation with other aspects of life (including education, social, other sports programs, etc)
- (2) Works well with teachers and coaches
- (3) Maintains good grades in school
- (4) Actively practices positive self-talk strategies and records results

g. Competitive personality

- (1) Maintains and evaluates a basic training and competition log with coach's help
- (2) Seeks success, and understands that not winning is part of athletic development

h. Drug awareness

- (1) Avoids all contact with performance enhancing and illegal drugs
- (2) Is able to differentiate between prescription medicine and illegal drugs

4. Training and Competition Performance Domain

a. Recommended Ranges of Cross Country Skiing Activity

- (1) Skis 4-6 times per week in the winter
- (2) Skiing in the non-winter season not necessary
- (3) The content of the training time includes the following approximate percentages of activity:
  - Undirected skiing 55%
  - Directed skiing and technical drills 45%
- (4) The training percentage for specific events reflects the following approximate percentages:
  - Classic 50%
  - Freestyle 50%
- (5) Competition starts and levels of competition should reflect the following range:
  - 8-16 total events
  - Divisional and Regional (National for J2s)Race Distance: 1-5 km

- b. Range of yearly training hours:
  - (1) 250-350 hours per year
- c. Off-Season/Dry-land or Other Sport activities
  - (1) Is active in a variety of sports, especially those that will enhance motor skills and help develop endurance systems in cross-country skiing. Examples would be running, soccer, biking, hiking and swimming. However, the athlete should have a winter sport focus during the winter season
  - (2) Is an active participant in a club conditioning program focusing on skill acquisition and general physical preparation for cross-country skiing
  - (3) Plays a variety of sport games for recreation and enjoyment
  - (4) Beginning to learn the concepts of ski walking and hill-bounding, and roller-skiing
- d. Periodization
  - (1) Has an active rest period between winter and summer season. Uses a four period training design: active rest, variety of base training, race preparation, winter training and competition

## 5. Equipment

- a. Skis
  - (1) May be using classic and freestyle skis for racing. Skis should be selected to fit the skiers' weight and height according to manufacturer's recommendations. A skier does not need more than one pair of skate and one pair of classic skis. Fit is critical!
  - (2) Is responsible for maintaining skis at all times.
- b. Boots
  - (1) Classic and Freestyle specific boots may be used
  - (2) Individual adjustments or modifications are made for all anatomical needs for boots to fit properly
- c. Poles
  - (1) Should be using poles specifically for classic or freestyle. Classic poles should fit snugly under the armpit. Freestyle poles should extend to the chin or mouth
- d. Ancillary Equipment
  - (1) Hill-bounding poles (slightly shorter than normal classic poles)
  - (2) Athlete wears appropriate footwear and clothing during all physical activities
  - (3) Athlete has a backpack for extra clothing, water bottle, water bottle carrier, waxing equipment, etc.
  - (3) Athlete has long underwear, windbreaker, warm-up jacket and pants, hat, gloves, racing gloves, wind briefs and/or jog bra

## 6. Education Domain

- (1) Introduction to basic physiology and training theory
- (2) Introduction to training planning
- (3) Masters the fundamentals of technique
- (4) Recognizes what makes good technique
- (5) Begins to listen to his or her body
- (6) Introduction to the concept of team cohesion
- (7) Maintains equipment with coach's help
- (8) Race waxes for classic and skate events with coach's help
- (9) Exhibits knowledge of competition day routine
- (10) Introduced to nutrition and hydration

### **The Specific Phase**

In this phase the athlete makes cross-country ski racing their primary sport. Participation in other sports should compliment cross-country ski training.

## C. Ages 16 to 20

### 1. Technical Domain

#### a. Technical Skills

- (1) Applies all skills (which were previously developed) in racing

#### b. Markers

- (1) Advanced cross-country skills
- (2) Capable of critical self-analysis of technique

### 2. Physiological Domain

a. Implements a periodized training program, with the understanding that improvement requires quality training AND quality recovery

b. Understands and implements the following training concepts:

- (1) Aerobic Threshold
- (2) Lactate Accumulation
- (3) Maximum Heart Rate
- (4) Training Zones
- (5) Distance Training
- (6) Interval Training

c. Training Methods and Practices

- (1) The majority of training for cross-country skiing is low-intensity aerobic training

- (2) A small percentage of training for cross-country skiing is anaerobic
- (3) Uses aerobic training for recovery between interval training sessions
- (4) Uses interval training to improve
- (5) Uses plyometrics for power development 1-2 times/week
- (6) Understands and uses the following activities:
  - (a) hill-bounding
  - (b) explosive strength
  - (c) explosive exercises
- (7) Knows the RICE system for injury treatment, and applies RICE appropriately
- (8) Practices effective hydration/rehydration techniques
- (9) Demonstrates good eating habits, including proper carbohydrate loading and reloading techniques

d. Markers

- (1) Shows improvement in technique, endurance, speed, and strength

3. Psychological and Sociological Domain

a. Goal setting

- (1) Develops weekly, monthly, and yearly goals specific to each phase of the planning cycle
- (2) All yearly periods contain goals for all domains

b. Performance planning

- (1) Develops and utilizes a competition day routine / plan
- (2) Develops and utilizes a plan/method for dealing with unforeseen events
- (3) Is developing a plan to maintain focus during competition

c. Attentional focus

- (1) Identifies and utilizes cue words

d. Arousal regulation and relaxation

- (1) Understands the concept of an optimum performance state
- (2) Understands anxiety, and has an elementary coping strategy to deal with it
- (3) Understands and utilizes the concept of activation

e. Imagery

- (1) Logs mental training
- (2) Understands the two perspectives of internal and external imagery

f. Over-training / Body Awareness

- (1) Able to identify symptoms of over-training
- (2) Recognizes relationship between over-training and performance
- (4) Learns to monitor fatigue-level using heart-rates

- g. Self-concept, image, efficacy
  - (1) Accepts responsibility
  - (2) Understands role of self-confidence in performance
  - (3) Engages in positive self-talk
  - (4) Understands the difference between true confidence and over-confidence
  - (5) Completes High School education
- h. Competitive personality
  - (1) Accepts personal responsibility for training effort, quality, and results
  - (2) Participates fully in personal program design
- i. Drug awareness
  - (1) Avoids all contact with performance enhancing and illegal drugs
  - (2) Is able to differentiate between prescription medicine and illegal drugs
  - (3) Has knowledge of USOC banned substance list

#### 4. Training and Competition Performance Domain

- a. Recommended ranges of cross country skiing activity
  - (1) Trains 5-12 sessions per week year-'round
  - (2) The content of the training time includes the following approximate percentages of activity:
 

|  |     |     |
|--|-----|-----|
| • Undirected skiing                    | 70% |     |
| • Directed Skiing and Technical drills |     | 30% |
  - (3) The training percentage for specific events should reflect these approximate percentages:
 

|             |     |
|-------------|-----|
| • Classic   | 50% |
| • Freestyle | 50% |
  - (4) Competition starts and levels of competition should reflect the following range:
    - 16-30 total events
    - Divisional and Regional and National levels
    - Possible International starts
- b. Range of yearly training hours:
  - (1) 350 -600 hours per year
 

|             |    |                 |      |
|-------------|----|-----------------|------|
| Athlete Age | 16 | Suggested Hours | 350+ |
|             | 17 |                 | 400+ |
|             | 18 |                 | 500+ |
|             | 19 |                 | 600+ |
|             | 20 |                 | 650+ |
  - (2) Recorded training hours should include endurance activities and strength training where the athlete's heart rate is over 120 (approx.) beats per minute.

(3) Recorded training hours DO NOT include yoga or stretching, which should be noted in the athlete's training log, but not added to training volume totals.

c. Other Sport activity

(1) Is active in other sports, especially those that will enhance motor skills and develop endurance systems in cross-country skiing. He / she should have a winter sport focus year-'round

(2) Participation in other sports outside of the ski season is encouraged, and should compliment cross-country ski training

d. Periodization

(1) Has an active rest period between winter and summer season (4-6 weeks)

(2) Uses a refined four period training program

(3) Uses a 3 or 4 week periodized training plan

e. Training plans

(1) The training and competition plan should be personalized, flexible, monitored, and evaluated

(2) The athlete keeps a detailed training log, which is evaluated on a monthly basis

(3) The athlete listens to his or her body, rather than blindly pursuing hourly training volume goals

f. Evaluation and assessment

(1) Performs a variety of standardized field tests throughout the year (running and roller-skiing)

(2) Training and competition periods are evaluated by the athlete and the coach

## 5. Equipment

a. Skis

(1) The athlete is responsible for all ski preparation and maintenance, and assures skis are properly waxed and maintained at all times

(2) The athlete carries appropriate kick wax and cork or roller-ski carbide tips while training

b. Boots

(1) Both classic and skating

c. Ancillary Equipment

(1) Both classic and skate roller-skis

(2) Helmet for roller-skiing

(3) Uses road-tips on poles when roller-skiing

## 6. Education Domain

- (1) Understands and utilizes basic exercise physiology
- (2) Understands and utilizes basic training theory
- (3) Possesses sport knowledge comparable to Level One Coaches' Education
- (4) Understands and utilizes basic nutrition and hydration
- (5) Selects equipment with coach's help
- (6) Maintains equipment
- (7) Can race wax for both classic and skating events
- (8) Develops training program with coach's help
- (9) Can analyze technique through video review
- (10) Understands his or her own capacity for training with help from coach
- (11) Begins to explore his or her personality and individual needs

### **The Late Phase**

This stage of talent development is the phase in which the athlete attempts to reach his or her full potential.

## D. Ages 21 and Over

### 1. Technical Domain

#### a. Technical Skills

- (1) Masters all techniques

#### b. Markers

- (1) Achieves a high percentage of weekly, monthly, and yearly training goals
- (2) USSA National Ranking
- (3) FIS International Ranking

### 2. Physiological Domain

a. All physiological training components are individualized

b. Completes appropriate training volume. Training is periodized by the week, month, and year

c. Begins to spend time training and competing at different altitudes

### 3. Psychological Skill and Sociological Domain

#### a. Goal setting

- (1) Sets and reviews goals for all levels of athletic activity

- b. Performance planning
  - (1) Capable of evaluating past training and competition plans, and creating future plans
  - (2) Able to cope positively with forced breaks in training
- c. Attentional focus
  - (1) Has mastered training and competition focus techniques
  - (2) Maintains focus during events and competitions
  - (3) Has mastered distraction control and event refocusing
- d. Arousal regulation and relaxation
  - (1) Has mastered methods of arousal regulation and relaxation
- e. Imagery
  - (1) Has mastered the use imagery to enhance performance
- f. Self-concept, image, efficacy
  - (1) Completes undergraduate degree
  - (2) Effectively uses positive self-talk
  - (3) Possesses true confidence
  - (4) Seeks a balanced lifestyle
  - (5) Makes decisions as a 24 Hour/Day Athlete
- g. Competitive personality
  - (1) Leaves no possible preparation domain unaddressed
  - (2) Exhibits a disciplined work ethic
  - (3) Seeks competition. Attempts to reach full potential through challenging competition
  - (4) Wins and loses gracefully

#### 4. Training and Competition Performance Domain

- a. Recommended ranges of cross-country skiing activity
  - (1) Trains 5-12 sessions per week year-round
  - (2) Utilizes summer skiing opportunities when available and appropriate
  - (3) Although most training sessions are unsupervised, the athlete has specific training goals for each session
  - (4) The training percentage for specific events should reflect these approximate percentages:
    - Classic 50%
    - Freestyle 50%
  - (5) Competition starts and levels of competition should reflect the following range:
    - 25-35 total competitions (not including time trials)
    - National and international level



- b. Range of yearly training hours:
  - (1) 600-800 hours per year
- c. Other sport activity
  - (1) Focuses on cross-country skiing and uses other sports for recreation, general fitness and motor skill enhancement
- d. Periodization
  - (1) Uses an individualized periodization plan to maximize performance
- e. Training plans
  - (1) Effectively uses past training plans to develop optimal current plan
  - (2) Takes calculated training risks in order to fulfill true potential
- f. Evaluation and assessment
  - (1) The athlete and coach meet regularly to evaluate progress

#### 5. Equipment

- a. Is responsible for having all equipment in perfect working order, to World Cup standards, at all times

#### 6. Education Domain

- (1) Has knowledge comparable to Level Two Coaches Education
- (2) Understands basic exercise physiology
- (3) Understands advanced training theory
- (4) Writes personal training program
- (5) Understands his or her own capacity for training and puts it to use in planning and evaluation
- (6) Understands and implements all aspects of World Class technique
- (7) Understands nutritional and hydration needs of elite athletes
- (8) Capable of evaluating his or her progress towards goals
- (9) Maintains good relationships with sponsors
- (10) Can select and maintain equipment
- (11) Can race wax for all conditions
- (12) Understands and accepts themselves

#### Definition of terms

**Aerobic training:** low to medium intensity training that can be sustained for a medium to long duration.

**Anaerobic capacity:** the ability to sustain a high intensity activity for short repetitions

**Anaerobic power:** the ability to move a heavy load fast.

**Anaerobic threshold:** the intensity level in which anaerobic energy-production methods start to be utilized.

**Anatomical adaptation:** the adjustment of the muscle's neurologic system in response to increasing loads.

**Balancing:** maintaining, regaining or improving the body's state of equilibrium.

**Bounds:** bounding ski imitation.

**Coordination:** the accuracy component of agility.

**Cognitive response:** response resulting from a thought or thought process.

**Development:** a change, usually positive, in functional capability.

**Directed skiing:** skiing with a coach to accomplish specific goal(s).

**Electrolyte:** having to do with essential salts.

**Ergogenic:** increases potential for work output or performance.

**Extension:** An unbending of a joint between the bones of a limb by which the angle between the bones is increased.

**External forces:** Forces existing in nature.

**Flexion:** a bending of the joint between the bones of a limb that diminishes the angle between the bones.

**Hypertrophy:** increase in muscle size.

**Interval training:** training that involves periods of intensity interspersed with rest.

**Intuitive response:** an automatic response without the effort of reasoning.

**Over-training:** the point at which normal rest does not suffice in the recovery process.

**Performance team:** the sum of those individuals who have a direct influence on the skill development of an individual athlete.

**Plyometrics:** explosive jumping exercises that utilize the neuromuscular components of the stretch shortening cycle.

**Power:** performance of work expressed per unit of time.

**Progression:** ordered steps of learning on a continuum of easiest to mastery.

**Recovery:** the act of resting, active or passive.

**Rep:** repetitions of an exercise performed without interruption.

**Rest interval:** the recovery time between bouts of exercise.

**RICE:** acronym for Rest, Ice, Compression, Elevation.

**Set:** a cumulation of repetitions.

**Simulation training:** competition rehearsal as close to race conditions as possible.

**Speed:** the rate of travel or the quickness component of agility.

**Spent:** Norwegian terms for ski-specific plyometric exercises.

**Static stretching:** a stretching method in which the stretch is held for a period of time.

**Technical drills:** exercises that aim to improve technique.

**Training periods:** specific blocks of the annual training plan.

**Undirected skiing:** skiing without specific guidance.

**Weight transfer:** shifting the center of mass from ski to ski.

**Work interval duration:** the amount of time performing an exercise.

**Work interval intensity:** the fervor with which the work interval is performed.

**Work/Rest ratio:** the exercise to recovery proportion.

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## ACTIVITIES

### Ford Sayre Nordic Racing

---

#### follow the leader

*Domains:*

- agility
- technique

*Description:*

- rotating leaders = varied pace, technique
  - each kid has a chance to lead, make decisions, etc
- 

#### cones/turns

*Domains:*

- agility
- coordination
- speed

*Description:*

- set up cones in/around stadium – slalom in/out, figure 8's, etc
- 

#### sharks & minnows

*Domains:*

- speed
- agility

*Description:*

- 
- 

#### no poles skiing

*Domains:*

- balance
- coordination
- strength (J2/up)
- technique

*Description:*

- warm-up/get group together exercise
  - count strides over fixed distance – try for fewer on each pass
  - leave poles behind – ski defined section of trail (short for BKL; longer for J2/up if goal is strength)
  - hold across body to illustrate hip position (skating)
- 

#### bushwhacking

*Domains:*

- endurance
- strength

*Description:*

- explore little-known or old trails, woods, etc
- 

#### relays

*Domains:*

- speed
- agility
- technique
- strength

*Description:*

- different activity/technique for each relay leg: skipping, backwards run, crossovers, poles/no poles, varied terrain/hills, etc
  - mixed-age relays
  - equipment scramble (find your skis in the pile, etc)
- 

#### glide contests

*Domains:*

- downhill
- balance

*Description:*

- one ski off/scooter
  - ski down a hill and see who can get the furthest
- 

#### slow motion skiing

*Domains:*

- balance
- coordination

*Description:*

- 
-

## tag

*Domains:*

- speed
- agility
- balance

*Description:*

- all without poles
  - blog tag, freeze tag, capture the flag
- 

## little loops

*Domains:*

- agility

*Description:*

- make little loops incorporating varied terrain/grooming – can give varied instructions per loop
- 

## slalom

*Domains:*

- downhill
- agility

*Description:*

- human gates (dryland) – kids (gates) spread downhill; uphill-most kid slaloms through gates and becomes bottom gate
  - pole gates (snow)
  - kids ski around poles to develop turning, stepping skills on downhill
  - mass start or dual racing or individual
- 

## eggbeaters

*Domains:*

- speed
- coordination
- agility

*Description:*

- short distances – see how many strides you can get in
  - vary technique
  - add corners etc
- 

## distance/adventure ski

*Domains:*

- endurance
- technique

*Description:*

- easy pace – keep moving!
  - rotate leader – have each kid follow someone new when leader changes – lets kids see different technique patterns etc
  - around the pond, war zone, upper loops/rollercoaster down, garipay, golf course, off piste...
  - can add in other elements (eg quick-legs section, repeat section to practice specific technique, etc)
- 

## starts

*Domains:*

- speed
- agility
- explosiveness
- coordination
- technique

*Description:*

- mass starts, individual starts, equipment scramble (find your skis in the pile, etc)
- 

## activity name

*Domains:*

- 
- 

*Description:*

- 
-

## ACTIVITIES – Jan 2010 additions

### Ford Sayre Nordic Racing

---

#### equipment loss relay

- |   |   |
|---|---|
| <i>Domains:</i>   | <i>Description:</i>   |
| <ul style="list-style-type: none"><li>• balance</li><li>• quickness</li></ul> | <ul style="list-style-type: none"><li>• a relay or race where every lap skier loses one piece of equipment per lap until they end up running at the end</li></ul> |
- 

#### terrain park/obstacle course

- |   |   |
|---|---|
| <i>Domains:</i>   | <i>Description:</i>   |
| <ul style="list-style-type: none"><li>• agility</li><li>• up/downhill</li><li>• speed</li></ul> | <ul style="list-style-type: none"><li>• slalom, jumping, etc. set-up with grooming assistance</li></ul> |
- 

#### dizzy relay

- |   |   |
|---|---|
| <i>Domains:</i>   | <i>Description:</i>   |
| <ul style="list-style-type: none"><li>• balance</li><li>• speed</li></ul> | <ul style="list-style-type: none"><li>• skiers ski down to one end of course, spin around pole, return to start</li></ul> |
- 

#### find pole relay

- |   |   |
|---|---|
| <i>Domains:</i>   | <i>Description:</i>   |
| <ul style="list-style-type: none"><li>• speed</li></ul> | <ul style="list-style-type: none"><li>• all poles are piled up, kids ski to pile to find pole, ski back—chance aspect of relay mitigates some of the speed concerns for slower/newer kids</li></ul> |
- 

#### adventure relay

- |  |  |
|--|--|
| <i>Domains:</i>  | <i>Description:</i>  |
| <ul style="list-style-type: none"><li>• strength</li><li>• speed</li></ul> | <ul style="list-style-type: none"><li>• race into ungroomed snow, builds up strength, and mitigates speed factor</li></ul> |
- 

#### tennis ball biathlon

- |   |  |
|---|--|
| <i>Domains:</i>   | <i>Description:</i>  |
| <ul style="list-style-type: none"><li>• speed</li><li>• explosiveness</li></ul> | <ul style="list-style-type: none"><li>• biathlon with tennis balls</li></ul> |
- 

#### blindfold skiing with partner

- |  |  |
|--|--|
| <i>Domains:</i>  | <i>Description:</i>  |
| <ul style="list-style-type: none"><li>• balance</li><li>• teamwork</li></ul> | <ul style="list-style-type: none"><li>• one skier skis blindfolded while the other gives commands of right, left, uphill, downhill, etc.</li></ul> |
- 

#### ski hash

- |   |  |
|---|--|
| <i>Domains:</i>   | <i>Description:</i>  |
| <ul style="list-style-type: none"><li>• endurance</li></ul> | <ul style="list-style-type: none"><li>• classic hash race where kids try to find leader, who can be down one of several trails, some of which are false trails...can normalize group as faster skiers go down the wrong path and have to turn around</li></ul> |
- 

#### fewest strides

- |   |  |
|---|--|
| <i>Domains:</i>   | <i>Description:</i>  |
| <ul style="list-style-type: none"><li>• balance</li><li>• technique</li></ul> | <ul style="list-style-type: none"><li>• over a set distance kids see how few strides they can take</li></ul> |

## **scoots in pairs**

*Domains:*

- balance
- teamwork

*Description:*

- kids take off one ski, pair up and link arms
- 

## **physioball soccer**

*Domains:*

- agility
- strength
- speed
- explosiveness

*Description:*

- without poles, kids play soccer with large yoga ball, batting ball with hands
- 

## **ultimate frisbee**

*Domains:*

- agility
- strength
- speed
- explosiveness

*Description:*

- no poles Frisbee with rubber chicken instead of Frisbee to mitigate collisions
- 

## **ski orienteering**

*Domains:*

- endurance
- teamwork

*Description:*

- kids ski to stations marked on map, requires kids to work together and helps to lessen the distance between fast and slow skiers since faster skiers don't always go the right way, and can jump ahead to get to the station to mark cards
- 

## **indian run, skiing**

*Domains:*

- speed

*Description:*

- groups of 3 ski in a line, with second person tracking and passing first person, who falls to back of line; new second person tracks and passes the new first person, etc.
- 

## **red light/green light**

*Domains:*

- explosiveness

*Description:*

- over 100-200m, play red light green light to practice starts/stops
- 

## **ant hospital**

*Domains:*

- teamwork
- strength

*Description:*

- tag with a twist: the tagged "ant" is sick, and the other ants carry it to the hospital where it is instantly healed and back in the game
- 

## **transitions**

*Domains:*

- agility
- technique

*Description:*

- carry speed into uphill, over the top, through technique changes, etc
  - try with eyes closed in gentle terrain!
- 

## **line skiing**

*Domains:*

- technique
- 

*Description:*

- ski in a line, focusing on energy conservation and smooth technique
- experiment with technique - are you gaining or dropping back?



## ACTIVITIES – Jan 2012 additions

### Ford Sayre Nordic Racing

---

#### Håkon's Games

*from Håkon Korsvold, 2010/11 3rd/4th grade lead coach*

#### Card Deck Relay

Spread out a deck or two of cards with the face down. Line up teams of 3 or 4 athletes 20 to 50 yards away. Each team gets a card suit to collect. If there are more than 4 teams, then some teams will collect the same kind of cards. Each person is allowed to draw only once per leg. If they draw "their" card, they take it back to their team. If, not, they put it back again, face down. Let each player run several legs - until the deck of card is reduced to maybe 1/3 of its original size.

A variant is to give each person two chances on each leg. If they don't draw "their" card at the first attempt, they run a short penalty round, and then they are allowed to draw one more time.

*note: can also be done as an individual running exercise*

#### Tail Game

Each person gets a tail made out of a piece of cloth. They are only allowed to run around in a restricted area. Everybody tries to snap the tails of the others. If they loose their tail, they have to replace it immediately if they have one.

#### Snip og Snap

Line up the athletes two and two [in pairs], back-to-back with maybe one or two yards between them. There should be at least 30 yards to run in both directions. Those facing in one direction are the Snaps, those facing in the opposite direction are the Snips. If the coach calls "Snap", then the Snips tries to catch the Snaps before the Snaps reach their line. If the coach calls "Snip", then the Snips have to try to get away.

#### Hoppe Bukk (leapfrog)

Three, four or more persons line up in tuck position. Last person jumps over each of the other, one at a time, putting his/hers hands on the back of the tucking persons. When this person reaches the front, he/she goes into tuck position. The last of the tuckers starts to jump over the other ones. This can also be done as a competition, but be careful so that each person doesn't go too far in front of each other (if competing over a distance; if competing over completed rounds, that doesn't matter so much).

#### Other Activities

In pairs, skiers each stand on one leg with hands on their backs and try to force the other one out of balance so that he/she stumbles or touches the ground with the other leg.

It is always popular do snow ball biathlon with the coach as target. I also tried to use tennis balls and buckets with success.



## USST TECHNIQUE DRILLS

These USST technique drills are included for your reference... as “seeds” rather than a suggestion that you run BKL kids through any specific drill.

Ideas contained in these drills could form the basis of a game, or short activity during practice.

It is easy for a coach’s adult brain to get mired in the detail... remember that from the skier’s attention and fitness perspectives, it is always best to minimize the talking and maximize the action!

***Always try an activity yourself/with other coaches before trying it out on the kids – going through it yourself will help you formulate an efficient way to set the activity up and a succinct way to explain it.***



# CROSS-COUNTRY SKI TECHNIQUE FUNDAMENTALS: DRILL PLAN

|                        |  |       |              |
|------------------------|--|-------|--------------|
| DRILL NAME:            | Bathroom Scale   | DATE: | January 2007 |
| FUNDAMENTAL SKI SKILL: | Power Application, and Body Position   |       |              |
| GOAL:                  | The goal of the Bathroom Scale Drill is to demonstrate the importance of proper upper body position in the double pole technique and how it pertains to power application. |       |              |
| EQUIPMENT REQUIRED:    | A partner, or coach, or bathroom scale, poles and a strong protective board like a 2x4.  |       |              |

| SETUP   | COACHING POINTS  | EVALUATION   |
|---|--|--|
| <p><b>Explain the drill in a way that doesn't take away from fitness. Teach and demonstrate the drill before heading out to train.</b></p> <p>-To achieve the goal of this workout, the athlete extends their arms straight out in front of them with little or no bend at the elbows. The coach supports the hands, or the scale supports the tips as the athletes drives downward in a double poling motion.</p> <p>-Now adjust the hands and arms of the athlete to a proper double poling start position: hands are high with the pinky finger roughly even with the eyes, and also shoulder width apart. Elbows are bent at approximately 90 degrees and shifted comfortably away from the centerline of the body. This time the coach supports the elbows or holds the skier's wrists as they drive the upper body down into a double poling motion. If no partner is available a scale can be used to measure the difference in applied force. A strong, protective board is used with the scale so it doesn't sustain significant damage.</p> | <p>-The factors at play in this drill have to do with the positioning of the hands and arms:</p> <p>-High hands with elbows bent at 90 degrees allow for a strong support system, and body weight can momentarily hang and compress onto the poles with the strong core for more power. Conversely, arms straight out in front eliminate the role of body weight in the poling motion. The arms aren't strong enough to support the whole body weight in this position.</p> <p>-Elbows should be shifted comfortably away from the centerline to activate the strong lat muscles in the poling motion.</p> | <p><b>Profile analysis:</b></p> <p>-Good body position: 90-degree elbows, high hands, hips tilted posterior, and rounded back.</p> <p>-The hips should remain high during the double pole. Watch for excessive sitting during the double pole cycle. If there is too much sitting then the core isn't being utilized properly when power is applied.</p> <p><b>Front analysis:</b></p> <p>-Hands should retrieve high before each double pole. "Pinky in the eye" is a catchy line that works well.</p> <p>-Elbows should be shifted comfortably away from the centerline to activate the strong lat muscles in the poling motion.</p> |

## PROGRESSIONS

|   |  |
|---|--|
| 1 | Progress within this drill by using the Locked and Loaded Drill on-snow.                       |
| 2 | Progress the Locked and Loaded Drill by applying the impulse along with a full follow through. |
| 3 |  |
| 4 |  |

# CROSS-COUNTRY SKI TECHNIQUE FUNDAMENTALS: DRILL PLAN

|                        |  |       |              |
|------------------------|--|-------|--------------|
| DRILL NAME:            | Locked 'n Loaded   | DATE: | January 2007 |
| FUNDAMENTAL SKI SKILL: | Double pole power application  |       |              |
| GOAL:                  | The goal of this drill is to teach the skier about proper power application, the role of the core, and the importance of body weight falling forward from the ankles in the double pole technique. |       |              |
| EQUIPMENT REQUIRED:    | Classic equipment, video   |       |              |

| SETUP   | COACHING POINTS  | EVALUATION  |
|---|--|---|
| <p><b>Explain the drill in a way that doesn't take away from fitness. Teach and demonstrate the drill before heading out to train.</b></p> <p>Flat to gradual downhill terrain</p> <p>Start in a good body position:</p> <ul style="list-style-type: none"> <li>-Weight on the balls of the feet</li> <li>-Good ankle flex</li> <li>-Supple knees</li> <li>-Hips tilted posterior (tail tucked between the legs)</li> <li>-Natural rounded back</li> </ul> <p>Envision the upper-body being fixed in cement with high hands, and strong 90-degree elbows.</p> | <p>- Envision the upper-body being fixed in cement with high hands, and strong 90-degree elbows. There is no follow through with the arms or shoulders. This will emphasize the role of the core in the double pole.</p> <p>-The only flex points in this drill are the core and supple knees and ankles. This will allow the skier to feel the fall forward from the ankles. The power in the double pole is derived from the body weight crashing onto the poles and the core crunching down.</p> <p>-After a concise and shallow core crunch the hips and hands retrieve to the high starting position simultaneously. This will pull the hips forward and reload for another powerful double pole.</p> | <p><b>Profile video analysis:</b></p> <ul style="list-style-type: none"> <li>-Good body position: 90-degree elbows, high hands, hips tilted posterior, and rounded back.</li> <li>-The hips should remain high during the double pole. Watch for excessive sitting during the double pole. If there is too much sitting then the core isn't being utilized properly.</li> <li>-The shoulders and arms don't follow through in this drill.</li> </ul> <p><b>Front video analysis:</b></p> <ul style="list-style-type: none"> <li>-Hands should retrieve high before each double pole. "Pinky in the eye" is a catchy line that works well.</li> <li>-Elbows should be shifted comfortably away from the centerline to activate the strong lat muscles in the poling motion.</li> </ul> |

## PROGRESSIONS

|   |  |
|---|--|
| 1 | Progress this drill by incrementally adding the follow through until a full double pole is accomplished. |
| 2 |  |
| 3 |  |
| 4 |  |

# CROSS-COUNTRY SKI TECHNIQUE FUNDAMENTALS: DRILL PLAN

|                        |  |       |              |
|------------------------|--|-------|--------------|
| DRILL NAME:            | Standing Broad Jump Drill  | DATE: | January 2007 |
| FUNDAMENTAL SKI SKILL: | Timing   |       |              |
| GOAL:                  | The goal of the Standing Broad Jump Drill is to teach the athlete about the importance of proper timing in the retrieval of the poles, core and hips back to the high position in the double pole technique. |       |              |
| EQUIPMENT REQUIRED:    | Video (skis and poles are not needed for this drill)   |       |              |

| SETUP   | COACHING POINTS  | EVALUATION  |
|---|--|---|
| <p><b>-Explain the drill in a way that doesn't take away from fitness. Teach and demonstrate the drill before heading out to train.</b></p> <p>-To achieve this goal, have the skier take off their skis or roller skis and poles. Visualize a standing broad jump.</p> <p><b>Start in a good body position:</b></p> <ul style="list-style-type: none"> <li>-Weight on the balls of the feet</li> <li>-Good ankle flex</li> <li>-supple knees</li> <li>-hips tilted posterior (tail tucked between the legs)</li> <li>-natural rounded back</li> </ul> <p>-Envision a standing broad jump. With such a jump, hands, arms, and upper body swing high and forward in unison with the leg impulse.</p> | <p>-Have the skier perform two jumps:</p> <p><b>The first jump</b> retrieves the hands to a high and forward position after the feet have landed. (ineffective)</p> <p><b>The second jump</b> retrieves the hands as the jump happens, just like a standing broad jump. (effective)</p> <p>-Proper timing of hand retrieval in double poling can be likened to the form used in a proper standing broad jump.</p> <p>- The body stretches out like an elastic band, pulling the hips forward and the hands high, so that the skier is ready to perform a powerful compression.</p> <p>- The momentum generated in a timely and snappy return will cause the skier to fall forward from the ankles. With the assistance of body weight now involved in the compression, the crashing onto the poles is more powerful.</p> | <p><b>This is a kinesthetic drill:</b></p> <p>The goal of this drill is to feel the sensation of hands and hips working together.</p> <p>Turn it into a contest: see how far the athlete can jump with hands and hips working together, see how far the athlete can jump without the arm-swing in unison.</p> <p>-Proper retrieval of the hands and hips should stretch out the upper body. It should also pull the hips forward so that they are ready to fall onto the poles.</p> |

## PROGRESSIONS

|   |  |
|---|--|
| 1 | Progress within this drill by taking it out onto snow and double poling. |
| 2 |  |
| 3 |  |
| 4 |  |

# CROSS-COUNTRY SKI TECHNIQUE FUNDAMENTALS: DRILL PLAN

|                        |  |       |              |
|------------------------|--|-------|--------------|
| DRILL NAME:            | Hot Feet   | DATE: | January 2007 |
| FUNDAMENTAL SKI SKILL: | Classic body position, timing, and proper power application  |       |              |
| GOAL:                  | The goal of this drill is to teach the skier how to maintain high hip position throughout the classic stride. This drill will also help to ingrain proper stride length and weight transfer. The drill can be used on a typical racecourse when the terrain gets too steep for the extended glide. |       |              |
| EQUIPMENT REQUIRED:    | Classic equipment, video   |       |              |

| SETUP   | COACHING POINTS   | EVALUATION   |
|---|---|--|
| <p><b>Explain the drill in a way that doesn't take away from fitness. Teach and demonstrate the drill before heading out to train.</b></p> <p>Gradual uphill terrain</p> <p><b>Start in a good body position:</b></p> <ul style="list-style-type: none"> <li>-Weight on the balls of the feet</li> <li>-Good ankle flex</li> <li>-Supple knees</li> <li>-Hips tilted posterior (tail tucked between the legs)</li> <li>-Natural rounded back</li> </ul> <p><b>There are 3 marked sections to this drill</b></p> <p>Ski with a regular length stride into a marked 15meter section of uphill. Hot-foot/run the designated section then continue with a regular stride after the marked section with the high hips that a run instills.</p> | <ul style="list-style-type: none"> <li>-Start with a good body position.</li> <li>-The marked 15-meter section of trail is the designated hot foot section. If there is glide during this section, then the skier needs to quicken the tempo and actually run on skis.</li> <li>-Good body position is never broken during the stride. The tendency is for skiers to over-stride in order to catch themselves from falling face first.</li> <li>-Look for a change in the hips during the drill compared to the regular stride. In running the hips never drop back. If there is a sinking, or dropping, of the hips during the kick, then the skier is over-striding. The Hot Feet drill should help fix this problem by shortening the stride-length. Hip position should show an improvement after the 15-meter section as compared to before the Hot Foot section.</li> </ul> | <p><b>Profile analysis:</b></p> <ul style="list-style-type: none"> <li>-Good body position: good ankle flex, supple knees, hips tilted posterior, and rounded back.</li> <li>-High hips throughout the kick. If the hips drop back and down during the kick then there is too much gliding and not enough heat on the feet.</li> <li>-Compress the ski down rather than kicking back.</li> </ul> <p><b>Front analysis:</b></p> <p>Weight shift - Look for the "upper body panel" to maintain its rectangle while subtly shifting over each gliding ski. If there is tipping in the shoulders then it is false weight transfer. To fix this problem work on the "no-pole" and "one ski" drills.</p> |

## PROGRESSIONS

|   |  |
|---|--|
| 1 | This drill can be done with poles first. Once the drill is accomplished with poles it can be replicated without poles.               |
| 2 | Progress within this drill by using steeper terrain to show how a short steep section of trail can be skied without losing momentum. |
| 3 |  |
| 4 |  |



# CROSS-COUNTRY SKI TECHNIQUE FUNDAMENTALS: DRILL PLAN

|                        |   |       |              |
|------------------------|---|-------|--------------|
| DRILL NAME:            | Minson's Last Dance   | DATE: | January 2007 |
| FUNDAMENTAL SKI SKILL: | Classic body position and timing  |       |              |
| GOAL:                  | The goal of this drill is to teach the skier how to maintain high hip position throughout the classic stride. The goal is also to maintain forward body lean from the ankles when striding. |       |              |
| EQUIPMENT REQUIRED:    | Classic equipment, video  |       |              |

| SETUP  | COACHING POINTS   | EVALUATION   |
|--|---|--|
| <p><b>Explain the drill in a way that doesn't take away from fitness. Teach and demonstrate the drill before heading out to train.</b></p> <p>Flat or gradual uphill terrain</p> <p><b>Start in a good body position:</b></p> <ul style="list-style-type: none"> <li>-Weight on the balls of the feet</li> <li>-Good ankle flex</li> <li>-Supple knees</li> <li>-Hips tilted posterior (tail tucked between the legs)</li> <li>-Natural rounded back</li> </ul> <p>Progress from a shuffle with almost no glide and build to a natural length glide.</p> | <ul style="list-style-type: none"> <li>-Start with good body position</li> <li>-The lean forward should come from the ankle flexing forward. The other angles should stay the same.</li> <li>-Good body position is never broken during the stride. The tendency is for skiers to over-stride in order to catch themselves. Keeping the stride short will ensure that the hips won't drop down and back.</li> <li>-With high hips, begin the forward body lean from the ankles by simply catching the fall with good body position. Maintain momentum by continuing the shuffle. Left, right, left, right. Incrementally add inches to the glide without over-striding until a full stride is accomplished.</li> <li>-Hand can be held on hips or at the side.</li> </ul> | <p><b>Profile analysis:</b></p> <ul style="list-style-type: none"> <li>-Good body position: good ankle flex, supple knees, hips tilted posterior, and rounded back.</li> <li>-High hips throughout the kick. If the hips drop back and down during the kick then shorten the stride length.</li> <li>-Compress the ski down rather than kicking back.</li> </ul> <p><b>Front analysis:</b></p> <p>Weight shift - Look for the "upper body panel" to maintain its rectangle while subtly shifting over each gliding ski. If there is tipping in the shoulders then it is false weight transfer. To fix this problem work on the "no-pole" and "one ski" drills.</p> |

## PROGRESSIONS

|   |  |
|---|--|
| 1 | Progress within this drill by incrementally adding glide if the body position is maintained. |
| 2 |  |
| 3 |  |
| 4 |  |

# CROSS-COUNTRY SKI TECHNIQUE FUNDAMENTALS: DRILL PLAN

|                        |  |       |              |
|------------------------|--|-------|--------------|
| DRILL NAME:            | No-Pole, and One-Ski Drill   | DATE: | January 2007 |
| FUNDAMENTAL SKI SKILL: | Balance, body position, and agility.   |       |              |
| GOAL:                  | The goal of this drill is to stretch the skier's comfort zone by removing a stabilizing component from their skiing like poles or a ski in the technique of diagonal stride. |       |              |
| EQUIPMENT REQUIRED:    | Classic equipment, and cones   |       |              |

| SETUP  | COACHING POINTS   | EVALUATION  |
|--|---|---|
| <p><b>Explain the drill in a way that doesn't take away from fitness. Teach and demonstrate the drill before heading out to train.</b></p> <p>Gradual downhill terrain for beginner skiers</p> <p>The <b>"No-Poles Drill"</b> is done without the poles on a gradual downhill. Start with a shuffle and gradually increase the glide as much as possible.</p> <p>The <b>"One Ski Drill"</b> should be done on a gradual downhill to start. Pick up one ski and glide as far down the hill as possible. Progress this drill by increasing the grade or making obstacles with cones.</p> | <p><b>No Poles:</b></p> <ul style="list-style-type: none"> <li>-Good body position is never broken during the stride.</li> <li>-Maintain a relaxed upper body with rounded shoulders. Proper arm swing throws the hands directly down the track and not across the body.</li> <li>-Regardless of speed a snappy kick that sets the wax sharply down into the snow before exploding off the ski without excessive bouncing is imperative.</li> </ul> <p><b>One Ski:</b></p> <ul style="list-style-type: none"> <li>-This is a good progression from the no-poles drill and it can be done with skate and classic gear alike.</li> <li>-A proper athletic body position will make a big difference in the success of this drill.</li> <li>-Keep both skis on and simply pick one ski up off the snow rather than taking it off. This will reduce the risk of a complete yard sale. Glide until speed runs out or a crash occurs.</li> </ul> | <p><b>Profile analysis: (No-Pole Drill)</b></p> <ul style="list-style-type: none"> <li>-Good body position: good ankle flex, supple knees, hips tilted posterior (tail tucked between the legs, and rounded back.</li> <li>-High hips throughout the kick. If the hips drop back and down during the kick then shorten the stride length.</li> <li>-Compress the ski down rather than kicking back.</li> </ul> <p><b>Front analysis: (Both Drills)</b></p> <p>Weight shift - Look for the "upper body panel" to maintain its rectangle while subtly shifting over each gliding ski. If there is tipping in the shoulders then it is false weight transfer. These are good drills to fix this problem.</p> |

## PROGRESSIONS

|   |   |
|---|---|
| 1 | Progress the no poles drill by extending the gliding time and distance on each ski. *Remember the kick must get snappier with more speed. |
| 2 | Progress the one ski drill by making the hill steeper or setting up obstacles with cones or gates.  |
| 3 |   |
| 4 |   |

# CROSS-COUNTRY SKI TECHNIQUE FUNDAMENTALS: DRILL PLAN

|                        |   |       |              |
|------------------------|---|-------|--------------|
| DRILL NAME:            | Skipping Drill  | DATE: | January 2007 |
| FUNDAMENTAL SKI SKILL: | Balance, timing, body position, and a powerfully quick kick   |       |              |
| GOAL:                  | The goal of this drill is to gain a better understanding of high hips, weight transfer, balance, timing, and a powerful kick. |       |              |
| EQUIPMENT REQUIRED:    | Classic equipment, video  |       |              |

| SETUP  | COACHING POINTS   | EVALUATION  |
|--|---|---|
| <p><b>Explain the drill in a way that doesn't take away from fitness. Teach and demonstrate the drill before heading out to train.</b></p> <p>Flat or gradual uphill terrain with or without classic tracks</p> <p>-Try skipping while not on skis to remember the rhythm and timing.</p> <p>-Use a skip at the end of the glide phase to set the wax directly down into the snow. Skip up and fall down onto the ski in order to learn how to set the wax down rather than kicking back.</p> <p>-Remember to keep the hips high over the foot rather than behind.</p> | <p>-Start in a good body position:<br/>           Weight on the balls of the feet<br/>           Good ankle flex<br/>           Supple knees<br/>           Natural rounded back</p> <p>-Set the wax down, then pop off and forward from the grounded ski.</p> <p>-The arm swinging facilitates the "up" of the skip.</p> <p>-If the center of mass is directly over the foot during the skip it will be more successful than when the foot is too far forward, i.e. over-striding.</p> | <p><b>Profile analysis:</b></p> <p>-Good body position: good ankle flex, supple knees, hips tilted posterior, and rounded back.</p> <p>-High hips throughout the kick. If the hips drop back and down during the kick then shorten the stride length.</p> <p>-Compress the ski down rather than kicking back.</p> <p><b>Front analysis:</b></p> <p>Weight shift - Look for the "upper body panel" to maintain its rectangle while subtly shifting over each gliding ski. If there is tipping in the shoulders then it is false weight transfer. To fix this problem work on the "No-Pole" and "One Ski" drills.</p> |

## PROGRESSIONS

|   |   |
|---|---|
| 1 | Start with skipping in tracks and with poles. Progress by skipping with no tracks. Finally, skip with no tracks and no poles. |
| 2 |   |
| 3 |   |
| 4 |   |

# CROSS-COUNTRY SKI TECHNIQUE FUNDAMENTALS: DRILL PLAN

|                        |   |       |              |
|------------------------|---|-------|--------------|
| DRILL NAME:            | Ankle Float   | DATE: | January 2007 |
| FUNDAMENTAL SKI SKILL: | Weight transfer<br>Balance  |       |              |
| GOAL:                  | The goal of the Ankle Float Drill is to teach the athlete about proper weight transfer, a powerful kick, and good balance that are all required for effective kick double poling. |       |              |
| EQUIPMENT REQUIRED:    | Classic equipment, video  |       |              |

| SETUP   | COACHING POINTS  | EVALUATION  |
|---|--|---|
| <p><b>Explain the drill in a way that doesn't take away from fitness. Teach and demonstrate before heading out to train and practice the drill.</b></p> <p>Gradual downhill terrain</p> <p>To execute this drill properly, abbreviate the return of the leg after it has completed its kicking motion. Leave the ski suspended briefly behind the gliding leg, or floating lightly in the track if proper balance is a drill prohibitive challenge. In either case, there is little or no weight riding on the returning ski, and 100% of the body weight is applied to the kick, thereby setting the wax firmly in the snow and finding a solid purchase so as to propel the skier down the track.</p> | <p>- There is little or no weight riding on the returning ski, and 100% of the body weight is applied to the kick, thereby setting the wax firmly in the snow and finding a solid purchase so as to propel the skier down the track.</p> <p>- The motion of the kick is a quick but powerful pop down into the snow that grabs the frozen crystals and sets the wax, thereby allowing a powerful bound forward onto the glide ski.</p> <p>- The upper body should shift as a panel over each gliding ski. If there is tipping in the upper body panel then the weight transfer is not being completed efficiently. -</p> | <p><b>Profile video analysis:</b></p> <p>-Good body position: 90-degree elbows, high hands, hips tilted posterior, and rounded back.</p> <p>-The hips should remain high during the kick and the double pole. Watch for excessive sitting during the double pole. If there is too much sitting then the core isn't being utilized properly. If the hips sink during the kick then the hotfoot drill will help.</p> <p><b>Front video analysis:</b></p> <p>-Hands should retrieve high before each double pole. "Pinky in the eye" is a catchy line that works well.</p> <p>-Elbows should be comfortably lined-up outside of the pole, but not so much that they are horizontal with the hands.</p> |

## PROGRESSIONS

|   |  |
|---|--|
| 1 | Start out on gradual uphill terrain and progress to faster and faster terrain.   |
| 2 | The ski that stays suspended can be suspended by simply lifting the heel. progress by lifting the ski off the ground completely. |
| 3 |  |
| 4 |  |

# CROSS-COUNTRY SKI TECHNIQUE FUNDAMENTALS: DRILL PLAN

DRILL NAME:

Locked 'n Loaded (Kick Double Pole)

DATE:

January 2007

FUNDAMENTAL  
SKI SKILL:

-Double Pole impulse application  
-Synchronizing the upper and lower body to create a more powerful kick

GOAL:

The goal of the Locked 'n Loaded Drill is to teach the athlete about proper initiation of upper body power, the role of the core, the importance of the body weight falling forward from the ankles, and finally, proper initiation of power in the kick.

EQUIPMENT REQUIRED:

Classic equipment, video

| SETUP   | COACHING POINTS   | EVALUATION  |
|---|---|---|
| <p><b>Explain the drill in a way that doesn't take away from fitness. Teach and demonstrate the drill before heading out to train.</b></p> <p>Flat to gradual uphill terrain</p> <p>This drill accentuates the double pole impulse by taking away the follow-thru of the double pole.</p> <p>Envision the upper-body being fixed in cement with high hands, and strong 90-degree elbows. The only flex point is in the core and in a slight bend in the knees.</p> <p>By eliminating the full release of the poles as typically utilized in the double pole technique, the skier now must rely on only the force of the impact and the strength of the core to generate forward propulsion.</p> <p>The kick should be synchronized with the retrieval of the upper body and poles. With a snappy retrieval, the kick also will be snappy, powerful, and effective. What occurs in the upper body is reflected in the lower body, and vice versa. Be sure to weight the kicking ski with 100% of the body weight as the kick occurs.</p> | <p>-The only flex points in this drill are the core and supple knees and ankles. This will allow the skier to feel the fall forward from the ankles and the power that is derived from the core.</p> <p>-The hips and hands should retrieve to the high starting position simultaneously. They are accompanied by a snappy kick in synchrony.</p> <p>-With high hips, initiate the forward body lean from the ankles and catch the fall with strong arm position and a strong core.</p> <p>-Due to the Locked 'n Loaded nature of this drill, there is no movement in the arms or shoulders relative to the upper body during this drill.</p> | <p><b>Profile analysis:</b></p> <p>-Good body position: 90-degree elbows, high hands, hips tilted posterior, and rounded back.</p> <p>-The hips should remain high during the kick and the double pole. Watch for excessive sitting during the double pole. If there is too much sitting then the core isn't being utilized properly. If the hips sink during the kick then the Hot Feet drill will help.</p> <p><b>Front analysis:</b></p> <p>-Hands, arms, and core should retrieve high before each double pole. "Pinky in the eye" is a catchy line that works well.</p> <p>-Elbows should be shifted comfortably away from the centerline to activate the strong lat muscles in the poling motion.</p> |

## PROGRESSIONS

|   |  |
|---|--|
| 1 | Progress this drill incrementally increasing the movement of the arms into a full double pole. |
| 2 |  |
| 3 |  |
| 4 |  |

# CROSS-COUNTRY SKI TECHNIQUE FUNDAMENTALS: DRILL PLAN

DRILL NAME:

Four Square

DATE:

January 2007

FUNDAMENTAL  
SKI SKILL:

Efficient kicking position

GOAL:

The goal of the Four Square drill is to teach the skier about proper ski or foot placement within the V1 technique, and to demonstrate how it pertains to efficient hip positioning. Ultimately this drill should help prove that side-to-side kicking, or even kicking is more efficient than stepping up the hill, where the kick has the tendency to become asymmetrical.

EQUIPMENT REQUIRED:

One pair of poles, video

| SETUP  | COACHING POINTS   | EVALUATION   |
|--|---|--|
| <p><b>Explain the drill in a way that doesn't take away from fitness. Teach and demonstrate the drill before heading out to train.</b></p> <p>Flat terrain, take off skis and poles, place poles in a perfect cross that forms four square boxes.</p> <p>Stand with one foot in each of in what are determined to be the two rear boxes</p> <p>Start in a good body position:</p> <ul style="list-style-type: none"> <li>-Weight evenly distributed from toe to heel, both feet slightly wider than shoulder width apart and in a "V"</li> <li>-Good ankle flex and supple knees</li> <li>-hips tilted posterior (tail tucked between the legs)</li> <li>-hip bone directly over mid-section of foot</li> <li>-natural rounded shoulders.</li> </ul> | <ul style="list-style-type: none"> <li>-Start with good body position</li> <li>-Without the heel leaving the ground, transfer body weight from left to right, right to left. Do so for several minutes to imprint the feeling. This is even, or symmetrical kicking for the V1 technique.</li> <li>-Now move the left foot forward one box as if taking a big step up the hill. Keep the right foot in its original box. Notice that the body weight is now compromised in the middle of the skis, and the hips are in a poor position.</li> <li>-Haul the body weight up and over the left foot and return to a good hip position. Notice the lifting that the quadriceps and hamstring muscles have to do to move from a poor hip position to a good hip position. Switch back and forth between the two methods to emphasize that side-to-side kicking is more efficient than stepping up the hill.</li> </ul> | <p><b>Profile analysis:</b></p> <ul style="list-style-type: none"> <li>-Good body position: evenly distributed weight over feet, ankle flex and supple knees, hips tilted posterior, hip bone directly over mid-section of foot, and rounded shoulders.</li> <li>-Maintain this body position throughout the efficient side-to-side kick. With good body position, the femur bone easily supports much of the body weight.</li> <li>-Analyze the step forward with the left foot. Make note of the extraneous effort required to lift the body weight to return hips to a good position</li> </ul> <p><b>Front analysis:</b></p> <ul style="list-style-type: none"> <li>-Weight shift: See that weight is transferred from left to right with symmetry, and that this weight shifts as both shoulders and hips move laterally as a panel. No tipping.</li> </ul> |

## PROGRESSIONS

|   |  |
|---|--|
| 1 | Progress within this drill by moving directly onto a V1-grade hill and make several passes using each technique: Side-to-side kicking, and stepping up the hill. |
| 2 | Add poles and practice the V1 technique while the drill is still fresh.  |
| 3 |  |
| 4 |  |

# CROSS-COUNTRY SKI TECHNIQUE FUNDAMENTALS: DRILL PLAN

DRILL NAME:  DATE:

FUNDAMENTAL SKI SKILL:

GOAL:

EQUIPMENT REQUIRED:

| SETUP  | COACHING POINTS  | EVALUATION  |
|--|--|---|
| <p><b>Explain the drill in a way that doesn't take away from fitness. Teach and demonstrate the drill before heading out to train.</b></p> <p>Uphill terrain steep enough to demand the V1 technique</p> <p>In this drill the skier alternates every three or four full cycles between using the poles and not using the poles. When not using the poles, the skier should go through the poling motion, but should not stick the baskets in the snow.</p> <p>Start in a good body position:<br/>           -Weight evenly distributed from toe to heel<br/>           -Good ankle flex and supple knees<br/>           -hips tilted posterior (tail tucked between the legs)<br/>           -hip bone directly over mid-section of foot<br/>           -natural rounded shoulders</p> | <p>-Start in a good body position.</p> <p>-Ski up the gradual incline with your poles on, but without planting them in the snow. Symmetrical, side-to-side kicking is easier without the incorporation of the pole plant.</p> <p>-Skate three times on each leg without planting the poles. Feel the symmetry. Without pause, add the poles for three skate cycles. The skier should not feel a change in symmetry in the legs as the asymmetrical poling motion is added.</p> <p>-Switch back and forth using both methods on a longer uphill. As symmetry becomes more natural, phase out the non-poling drill. The hybrid becomes fully electric.</p> | <p><b>Profile analysis:</b><br/>           -Good body position: evenly distributed weight over feet, ankle flex and supple knees, hips tilted posterior, hip bone directly over mid-section of foot, and rounded shoulders should be maintained though both poling and non-poling styles.</p> <p>-If a large step up the hill is occurring, it is likely that the non-poling side leg is standing up (peg leg) instead of kicking the body weight over to the poling side.</p> <p><b>Front analysis:</b><br/>           -If strong and effective kicking is happening only on the poling side of the skate, point out that the standing up motion on the non-poling side (peg leg) is a kick, but in the wrong direction. This moves the weight up instead of over. Side to side is efficient in that it maintains good hip position.</p> |

## PROGRESSIONS

|   |  |
|---|--|
| 1 | Progress within this drill by beginning on a gradual grade, incrementally increasing the pitch as the skier becomes more adept at mastering symmetrical kicking. |
| 2 |  |
| 3 |  |
| 4 |  |

# CROSS-COUNTRY SKI TECHNIQUE FUNDAMENTALS: DRILL PLAN

DRILL NAME:

Minson's Last Dance

DATE:

January 2007

FUNDAMENTAL  
SKI SKILL:

Body position and forward lean from the ankles

GOAL:

The goals of Minson's Last Dance are to teach the skier about proper body positioning and forward lean from the ankles within the V1 technique.

EQUIPMENT REQUIRED:

Freestyle equipment, no poles, video

| SETUP  | COACHING POINTS  | EVALUATION  |
|--|--|---|
| <p><b>Explain the drill in a way that doesn't take away from fitness. Teach and demonstrate the drill before heading out to train.</b></p> <p>Gentle uphill grade</p> <p>Review good body position:<br/>                     -Weight evenly distributed from toe to heel<br/>                     -Good ankle flexion and supple knees<br/>                     -hips tilted posterior (tail tucked between the legs)<br/>                     -hip bone directly over mid-section of foot<br/>                     -natural rounded shoulders</p> | <p>-Start in a poor body position with hips in an exaggerated seated position with skis in a V.</p> <p>-With hands placed on hips for a better feeling for positioning, press the knees forward so the hips move forward over the mid-section of the feet. Notice the increased ankle flexion.</p> <p>-As the skier falls forward from the ankles, and the hips move over the mid-foot, they should catch their fall with one small skate step. With a small skate step, good body position can be maintained.</p> <p>-Attention to maintaining body position must be paid. To do this the skier should maintain the forward movement with small skate steps versus big steps that drag the hips back.</p> <p>-Gradually increase glide if body position is maintained. Good body position on one ski kicks directly into good body position on the other. GBP is always maintained.</p> | <p><b>Profile analysis:</b><br/>                     -Good body position: evenly distributed weight over feet, ankle flex and supple knees, hips tilted posterior, hip bone directly over mid-section of foot, and rounded shoulders should be maintained throughout this drill.</p> <p>-If a large step up the hill is occurring versus side-to-side kicking, good body position will not be maintained.</p> <p><b>Front analysis:</b><br/>                     -Check for symmetrical kicking on both sides that immediately kicks the body weight to the other ski instead of standing up, or employing a wasteful peg-leg.</p> <p>-See that the upper body is shifted as a panel from left to right. With beginner skiers the tendency is to stay safe and comfortable by keeping the weight in the middle.</p> |

## PROGRESSIONS

|   |   |
|---|---|
| 1 | Progress within this drill by mastering the forward fall from the ankles before any power is added to the kick. |
| 2 | Increasingly add power only after proper body position is mastered with the smallest skate steps.               |
| 3 |   |
| 4 |   |



# CROSS-COUNTRY SKI TECHNIQUE FUNDAMENTALS: DRILL PLAN

|                        |   |       |              |
|------------------------|---|-------|--------------|
| DRILL NAME:            | No Pole Drills  | DATE: | January 2007 |
| FUNDAMENTAL SKI SKILL: | Efficient weight transfer   |       |              |
| GOAL:                  | The goal of the No Pole drill is to teach the skier the importance of core stability as it pertains to a proper weight transfer in skating. |       |              |
| EQUIPMENT REQUIRED:    | Freestyle equipment (including poles), video  |       |              |

| SETUP   | COACHING POINTS  | EVALUATION   |
|---|--|--|
| <p><b>Explain the drill in a way that doesn't take away from fitness. Teach and demonstrate the drill before heading out to train.</b></p> <p>Flat or gentle uphill grade</p> <p><b>Review good body position:</b></p> <ul style="list-style-type: none"> <li>-Weight evenly distributed from toe to heel</li> <li>-Good ankle flexion and supple knees pressed forward</li> <li>-hips tilted posterior (tail tucked between the legs)</li> <li>-hip bone directly over mid-section of foot</li> <li>-natural rounded shoulders</li> </ul> <p><b>Explain the two methods of skiing within this drill:</b></p> <ol style="list-style-type: none"> <li>1. Horizontal poles held in front of the body. No twisting.</li> <li>2. Vertical poles held in front of the body. No tipping.</li> </ol> | <p><b>Horizontal poles:</b><br/>Poles should be held in front of the body. A crash involving poles held behind the shoulders can result in a dangerous face plant.</p> <p>Explain to the skier that 5-10 degrees of twist in each direction is acceptable, but that extraneous twisting in the upper body will be power-prohibitive when the poles are added.</p> <p>Excessive twisting is usually the result of improper weight transfer. Be sure to use the legs to kick the body weight from side-to-side, rather than a twisting or jerking motion in the upper body. Core stability is key. Hips and shoulders should shift together as an unbroken panel. Also see that the kick is side-to-side, as a kick out the back (or late kick) will also trigger an upper body twist.</p> <p><b>Vertical poles:</b><br/>As with the above drill, the goal is proper weight transfer. Excessive tipping in the shoulders means the weight is not being transferred with both shoulders and hips working together. Move both components as an unbroken panel from side-to-side.</p> | <p>Compare video with and without twisting or tipping.</p> <p><b>Profile analysis:</b></p> <ul style="list-style-type: none"> <li>-Check off all components of good body position</li> <li>-If the kicking motion is side-to-side, and weight transfer happens as a result of the shoulders and hips shifting as a panel, a twist should not be evident. (The shoulders or hips shouldn't open or close from a side perspective.)</li> </ul> <p><b>Front analysis:</b></p> <ul style="list-style-type: none"> <li>-See that the upper body is shifted as a panel from left to right. With beginner skiers the tendency is to stay safe and comfortable by keeping the weight in the middle. The hips tend to stay in the middle while the shoulders tip outside. Focusing on committing to the glide ski with the whole upper-body panel will help the skier move their weight "out of the middle."</li> </ul> |

## PROGRESSIONS

|   |  |
|---|--|
| 1 | Progress within this drill by increasing the grade of the climb  |
| 2 | An additional progression can focus on increasing the speed. Increasing both terrain and velocity will greatly challenge the skier's ability to maintain proper body position. |
| 3 |  |
| 4 |  |

# CROSS-COUNTRY SKI TECHNIQUE FUNDAMENTALS: DRILL PLAN

|                        |   |       |              |
|------------------------|---|-------|--------------|
| DRILL NAME:            | Saddle Feet   | DATE: | January 2007 |
| FUNDAMENTAL SKI SKILL: | Side-to-side kicking  |       |              |
| GOAL:                  | The goal of the Saddle Feet drill is to train the skier to utilize even kicking from side-to-side. This will maintain momentum by moving from skate to skate in the V1 technique even in steep terrain. |       |              |
| EQUIPMENT REQUIRED:    | Freestyle equipment (no poles), video   |       |              |

| SETUP   | COACHING POINTS  | EVALUATION  |
|---|--|---|
| <p><b>Explain the drill in a way that doesn't take away from fitness. Teach and demonstrate the drill before heading out to train.</b></p> <p>Gentle uphill grade that is steep enough to demand V1</p> <p><b>Review good body position:</b></p> <ul style="list-style-type: none"> <li>-Weight evenly distributed from toe to heel</li> <li>-Good ankle flexion and supple knees pressed forward</li> <li>-hips tilted posterior (tail tucked between the legs)</li> <li>-hip bone directly over mid-section of foot</li> <li>-natural rounded shoulders</li> </ul> <p>-This drill utilizes two methods of skiing up the hill to highlight which is efficient.</p> <ol style="list-style-type: none"> <li>1. Ski up the hill by bringing the feet close together during weight transfer phase (Click the heels ⇒ Inefficient).</li> <li>2. Saddle feet method w/ feet no closer than 1 ½ to 2' apart (Saddle feet ⇒ Yeah!)f</li> </ol> | <p>-Observe both methods of skiing up the hill</p> <p><b>-Narrow feet:</b> Weight transfer may seem to be simpler but in fact that is only because the foot comes in under the skier rather than the skier getting over the foot. Getting the weight over the foot requires an effective kick. The difference is that when the foot is directly under the skier there is no leverage to apply force to the ski. Even if the leg is loaded and in a strong position any kicking motion will only push the skier straight up.</p> <p><b>-Saddle feet:</b> The ski is set down in a position that immediately allows the skier to laterally kick their weight over to the other ski. It should be emphasized again that by using the saddle feet stance, weight transfer becomes a matter of moving the hips from side-to-side rather than leaving the hips in the middle and attempting to bring the feet beneath. This requires a strong kick, and that is the point.</p> | <p><b>Profile analysis:</b></p> <p>-Good body position: evenly distributed weight over feet, ankle flex and supple knees, hips tilted posterior, hip bone directly over mid-section of foot, and rounded shoulders should be maintained throughout this drill. If a large step up the hill is occurring, hip position will not be maintained. Power can not be added until the ski slows down, thereby placing the hips again over the midsection of the foot (Good body position to good body position)</p> <p><b>Front analysis:</b></p> <p>-Check for symmetrical kicking on both sides. See that the kick immediately shifts the body weight to the other ski instead of standing up, or employing a wasteful peg-leg.</p> <p>-See that the upper body is shifted as a panel from left to right. With beginner skiers the tendency is to stay safe and comfortable by keeping the weight in the middle. The hips tend to stay in the middle while the shoulders tip laterally. Focusing on committing to the glide ski with the whole upper-body panel will help the skier move their weight "out of the middle."</p> |

## PROGRESSIONS

|   |  |
|---|--|
| 1 | Progress within this drill by adding the poles.  |
| 2 | An additional progression can involve taking the concept of Saddle feet to steeper terrain. As terrain steepens, an even wider foot stance will be demanded. |
| 3 |  |
| 4 |  |

# CROSS-COUNTRY SKI TECHNIQUE FUNDAMENTALS: DRILL PLAN

DRILL NAME:

Agility and Stability

DATE:

January 2007

FUNDAMENTAL  
SKI SKILL:

Balance and coordination

GOAL:

The goal of the agility and stability exercises is to challenge the skier's comfort level as it pertains to balance and coordination.

EQUIPMENT REQUIRED:

Freestyle equipment, video

| SETUP  | COACHING POINTS  | EVALUATION   |
|--|--|--|
| <p><b>Explain the drill in a way that doesn't take away from fitness. Teach and demonstrate the drill before heading out to train.</b></p> <p><b>Exercise #1 - Gliding downhill on one ski</b><br/>Begin this exercise on slower terrain to allow the athlete to develop better confidence in their balance and a feel for their skis. The skier should keep both skis on so that in the event of a crash landing, all is not lost. Use a water bottle holder to mark each skier's personal best. Try a team competition. Be sure to practice each leg, as athletes tend to have a dominant side. Train weaknesses and don't be afraid to fall down to the outside of the ski!</p> <p><b>Exercise # 2 – V2 w/ twice the poling</b><br/>Pick a smooth flat, or smooth gradual downhill section of trail to begin. Technique in this drill is similar to V2, except body weight is not transferred to the other ski until the second poling motion. Pole twice on each side.</p> | <p><b>Exercise #1 - Gliding downhill on one ski</b><br/>For gliding drills the skier should focus on riding a flat ski. To do this center the upper body over the glide ski hip, which is centered over the knee, which is centered over the ski. Note that the hip platform should remain level throughout the drill. Core stability and strength are a chief component in mastering this skill.</p> <p><b>Exercise #2 –V2 w/ twice the poling</b><br/>This will force a longer glide and will help the skier develop comfort and patience in staying with the glide ski until it is time to simultaneously pole and kick to the other side. All too often the skier will fall away from the gliding ski before they have initiated the kick or achieved a good start position with the poles. This will partially unload the leg before the kick happens—much like unloading your gun and then trying to shoot. In addition the poling motion or compression will be off balance. Timing is everything and balance is a crucial ingredient</p> | <p><b>Profile analysis:</b><br/>In the gliding exercise, look for spectacular crashes. In V2, look for the components of proper body position and technique:<br/>-High hands and hips<br/>-Weight spread evenly over the foot<br/>-Side-to-side kick (not a kick that drags the hip back)<br/>-Upper body and hips remain perpendicular to direction of travel</p> <p><b>Front analysis:</b><br/>Again, have the video camera ready for cataclysmic crashes. In V2, look for the components of proper body position technique:<br/>-High hands and hips<br/>-shallow but distinct and aggressive compression<br/>-synchrony of kick and pole plant<br/>-Quick kick—not long and labored<br/>-Complete weight transfer (flat glide ski)<br/>-Shoulders and hips form a panel that shifts from left to right</p> |

## PROGRESSIONS

|   |  |
|---|--|
| 1 | Progress within these drills through the use of challenging terrain                |
| 2 | With the V2 exercise, set up a race between two skiers using this goofy technique. |
| 3 |  |
| 4 |  |

# CROSS-COUNTRY SKI TECHNIQUE FUNDAMENTALS: DRILL PLAN

|                        |   |       |              |
|------------------------|---|-------|--------------|
| DRILL NAME:            | Speed Skater  | DATE: | January 2007 |
| FUNDAMENTAL SKI SKILL: | Timing and momentum   |       |              |
| GOAL:                  | The goal of the Speed Skater Drill is to generate full weight transfer through proper timing from one ski to the next by utilizing of aggressive arm swing. |       |              |
| EQUIPMENT REQUIRED:    | Freestyle equipment (no poles), video   |       |              |

| SETUP  | COACHING POINTS   | EVALUATION   |
|--|---|--|
| <p><b>Explain the drill in a way that doesn't take away from fitness. Teach and demonstrate the drill before heading out to train.</b></p> <p>This drill is best performed on flat terrain.</p> <p><b>Review good body position:</b></p> <ul style="list-style-type: none"> <li>-Weight evenly distributed from toe to heel</li> <li>-Good ankle flexion and supple knees pressed forward</li> <li>-hips tilted posterior (tail tucked between the legs)</li> <li>-hip bone directly over mid-section of foot</li> <li>-natural rounded shoulders</li> </ul> <p>Choose a poling and a non-poling side for this drill. Highlight that the skier should move from a high position on the poling side, to a relatively low position on the non-poling side.</p> | <p>-To perform this drill properly the skier should swing their arms quickly from side-to-side without using poles – just as speed skaters do on straight-aways. The momentum generated from this arm swing when timed in unison with the kick increases kicking power.</p> <p>-The snappier the arm swing, the quicker the kick.</p> <p>-See that the weight is being shifted completely, not as a result of the head and upper body tipping over from side to side, but from the shoulders and hips shifting together as a panel. It is all in the hips.</p> <p>-Weight should be over the mid-section of the foot so the hips can remain in a forward position with weight supported by the skeletal system as much as possible.</p> | <p><b>Profile analysis:</b></p> <p>-See that the kicking motion is side-to-side. If it is late the kick will pull the corresponding hip back.</p> <p><b>Front analysis:</b></p> <p>-See that the arm swing is snappy, and that the body weight responds in the direction of the swing with a quick and timely weight transfer</p> <p>-See that the upper body is shifted as a panel from left to right. With beginner skiers the tendency is to stay safe and comfortable by keeping the weight in the middle.</p> <p>-The arm swing should happen in one steady and quick motion. Many skiers have a tendency to incorporate a mid-swing pause. This eliminates the momentum generated by the arm swing, and can hamper the strength of the kick and the completeness of weight transfer.</p> |

| PROGRESSIONS |   |
|--------------|---|
| 1            | Progress within this drill by varving the velocity.                               |
| 2            | Be sure to add poles and practice V2 Alternate as a way of completing this drill. |
| 3            |   |
| 4            |   |

# CROSS-COUNTRY SKI TECHNIQUE FUNDAMENTALS: DRILL PLAN

DRILL NAME:

The Train

DATE:

January 2007

FUNDAMENTAL  
SKI SKILL:

Awareness

GOAL:

The goal of the Train Drill is to teach skiers how to ski together in a tight pack.

EQUIPMENT REQUIRED:

Freestyle equipment, video

| SETUP   | COACHING POINTS  | EVALUATION   |
|---|--|--|
| <p><b>Explain the drill in a way that doesn't take away from fitness. Teach and demonstrate the drill before heading out to train.</b></p> <p>This drill is best performed on flat terrain.</p> <p>Pair skiers of similar abilities. Assign a lead skier and a rear skier. The rear skier will not need poles. With the rear skier behind the lead skier, and with baskets in hand, the two skiers begin skiing with the timing of V2 Alternate. The rear skier mimics the exact timing and stride lengths of the lead skier.</p> <p>Explain the need for skiing comfortably in a tight pack. The concept of drafting, or conserving energy in the wake of the lead skier, is dependent upon skiing close together.</p> | <p>In order to accomplish the goal of learning to ski together in a tight pack, the rear skier must learn to be aware of the timing and gear changes of the lead skier, the placement of equipment in the snow, and variations in terrain.</p> <p>Awareness and relaxation are key when skiing in a tight pack whether it is a race or an easy Wednesday night cruise.</p> | <p><b>Profile analysis:</b><br/>If this drill does not look silly, they are probably not doing it correctly.</p> <p>Also, check for a full arm swing as the synchrony of this will be the key to solid harmony between both skiers.</p> <p>Watch for side-to-side kicking.</p> <p><b>Front analysis:</b> From this angle, the synchrony of the two skiers should completely hide the rear skier.</p> <p>Once synchrony is achieved, check to see that weight transfer is complete.</p> |
| PROGRESSIONS  |  |  |
| 1   | Progress within this drill by increasing the speed and by introducing varying terrain.   |  |
| 2   | The lead skier can switch unannounced from V2 Alternate timing to V2, forcing the rear skier to pay close attention and respond quickly.   |  |
| 3   |  |  |
| 4   |  |  |

# CROSS-COUNTRY SKI TECHNIQUE FUNDAMENTALS: DRILL PLAN

|                        |   |       |              |
|------------------------|---|-------|--------------|
| DRILL NAME:            | Locked 'n Loaded  | DATE: | January 2007 |
| FUNDAMENTAL SKI SKILL: | Proper starting position  |       |              |
| GOAL:                  | The goals of the Locked 'n Loaded Drill are many. It will teach the athlete about proper initiation of power, the role of the core, the importance of the body weight falling forward from the ankles, and synchronizing the timing of the upper-body compression and the kick in the V2 technique. |       |              |
| EQUIPMENT REQUIRED:    | Freestyle equipment, video  |       |              |

| SETUP   | COACHING POINTS  | EVALUATION   |
|---|--|--|
| <p><b>Explain the drill in a way that doesn't take away from fitness. Teach and demonstrate the drill before heading out to train.</b></p> <p>Flat terrain</p> <p><b>Review good body position:</b></p> <ul style="list-style-type: none"> <li>-Weight evenly distributed from toe to heel</li> <li>-Good ankle flexion and supple knees pressed forward</li> <li>-hips tilted posterior (tail tucked between the legs)</li> <li>-hip bone directly over mid-section of foot</li> <li>-natural rounded shoulders</li> </ul> <p><b>Review proper starting position:</b></p> <ul style="list-style-type: none"> <li>-High hands (pinky at eye-level)</li> <li>-Elbows pointed comfortably out to the sides</li> <li>-Forward hips.</li> <li>-the whole body falls forward from the ankles.</li> </ul> | <p>-To isolate the importance of initiating power with the core, eliminate the full release of the poles. Instead, lock the arms (bent at 90 degrees). Relative to the core, the arms should not move. Isolate the core.</p> <p>-From the high starting position, the skier crashes onto the poles with a strong abdominal crunch to initiate the power. At the same time, the skier initiates the kick by dropping their weight down onto the kicking leg.</p> <p>-The most power is derived when the skier can synchronously time the drop onto the poles and the ski.</p> <p>-This short and powerful compression yields a quick and snappy kick.</p> | <p><b>Profile analysis:</b></p> <p>Because the arms are locked tightly to the core, the return to a high position happens together (arms and core together). Notice that this generates forward commitment from the ankles, as the entire mass of the upper body drives the skier down the track.</p> <p>-See that the kicking motion is side-to-side. If the kicking foot toe drifts behind the heel of the glide ski foot, the kick is late.</p> <p><b>Front analysis:</b></p> <p>Look for perfect synchrony of the initiation of both compression and kick</p> <p>From this view, a snappy kick versus a long and laboring kick will be distinguishable.</p> <p>Full commitment to each ski is mandatory. Look for excessive tipping that will defeat proper weight transfer.</p> |

## PROGRESSIONS

|   |   |
|---|---|
| 1 | To demonstrate how this drill applies to full-scale V2 start with the locked 'n loaded drill and gradually progress to a full V2. |
| 2 |   |
| 3 |   |
| 4 |   |

# CROSS-COUNTRY SKI TECHNIQUE FUNDAMENTALS: DRILL PLAN

DRILL NAME:

Sprint Skate

DATE:

January 2007

FUNDAMENTAL  
SKI SKILL:

Coordination within V2

GOAL:

The goal of the Sprint Skate drill is to greatly challenge the skier's V2 technique. This drill will stretch, twist, and distort the traditional V2. In the end, the skier will have an additional gear to use in sprinting, and will also have a greatly improved V2.

EQUIPMENT REQUIRED:

Freestyle equipment, video, and an audience.

| SETUP   | COACHING POINTS   | EVALUATION  |
|---|---|---|
| <p><b>Explain the drill in a way that doesn't take away from fitness. Teach and demonstrate the drill before heading out to train.</b></p> <p>Flat or gentle uphill grade</p> <p><b>Review good body position for V2:</b></p> <ul style="list-style-type: none"> <li>-Weight evenly distributed from toe to heel</li> <li>-Good ankle flexion and supple knees pressed forward</li> <li>-hips tilted posterior (tail tucked between the legs)</li> <li>-hip bone directly over mid-section of foot</li> <li>-natural rounded shoulders</li> </ul> <p><b>Review key technical components for V2</b></p> <ul style="list-style-type: none"> <li>-high hands and hips</li> <li>-Full commitment to each ski</li> <li>-side-to-side kicking motion</li> </ul> | <p>Begin with traditional V2. Begin to narrow the V pattern with the skis by pointing the glide ski straight ahead.</p> <p>Now, add a hop at the end of the glide phase that redirects the glide ski from straight ahead to a V angle outward like in traditional V2. This hop will draw power and synchronization to the compression and kicking phase. This hop is the result of the dynamic return of the poles and upper body in conjunction with the small hop from the leg that brings the skier's weight up over the kicking ski.</p> <p>From this high position there is a lot of power coming down on the ski and poles – you gotta get up to get down! In addition, notice that in setting the ski pointing straight ahead down the track the skier can apply power to the outside edge of the ski by utilizing aggressive body lean away from that edge. The skier then utilizes a small hop to redirect both the ski and the body lean so that power can be applied to the ski's inside edge. This happens all within a single glide phase.</p> | <p><b>Profile analysis</b></p> <p>Despite the Sprint Skate being vastly different than its counterpart V2, technical components are very similar.</p> <p><b>Look for these V2 components:</b></p> <ul style="list-style-type: none"> <li>-Aggressive elbow bend at approximately 90 degrees</li> <li>-High hips</li> <li>-weight evenly distributed over foot---leading to side-to-side kicking</li> </ul> <p><b>Also look for these Sprint Skate components:</b></p> <ul style="list-style-type: none"> <li>-a small hop on each ski (that redirects the glide direction)</li> </ul> <p><b>Front analysis</b></p> <p><b>Look for these V2 components:</b></p> <ul style="list-style-type: none"> <li>-High hands w/ elbows comfortably out to the sides</li> <li>-Quick kick in synchrony with concise compression</li> </ul> <p><b>Also look for these Sprint Skate components:</b></p> <ul style="list-style-type: none"> <li>-Weight applied to both outside and inside edges during the cycle</li> <li>-A small hop/redirecting of ski from straight ahead to angled outward in a traditional "V" formation</li> </ul> |

## PROGRESSIONS

|   |   |
|---|---|
| 1 | Progress within this drill by increasing the velocity and changing the terrain.   |
| 2 | Create a race in which one skier V2's and the other skier Sprint Skates. The Sprint Skate technique is used by several skiers on the World Cup circuit. |
| 3 |   |
| 4 |   |







## Glossary

**Compression-** Compression can refer to the legs or the core during the power application. The core compression is very similar to a typical abdominal crunch. The leg compression is referring to the loading, or bending, of the leg joints.

**Cycle (stride)-** When cycle or stride is used in this video they are used synonymously to mean a completion of the skiing motion that brings the skier back to the same starting position. Example: the start of the double pole begins at a high starting position. A full cycle will bring the skier all the way through the double pole and back up to the original starting position.

**Extended Position-** An extended position is an elongated position that can describe the arms, legs, or torso.

**Follow Through (arm)-** Follow through of the arm is the finish of the poling motion. The follow through is the extension of the arm and a flick of the wrist that briefly lets go of the pole.

**Forward hips/ high hips-** Forward/ high hips are relative to the foot that is on the snow. High, or forward hips, will be in front of the foot that is supporting them. A high/forward hip will ensure that the center of mass is in front of the center of support, thus creating the need for power to generate a catch so the skier doesn't fall forward. If the hips are back then there is no need for forward generating power.

**Glide Phase-** In both classic and skating techniques the glide phase is the phase of the stride where the skier glides down the track on one ski.

**Gliding Ski-** The gliding ski is the ski that the skier is skiing on. It is on the snow while the non-gliding ski is off of the snow.

**Hand Return-** Hand return refers to the hands moving from an extended back position to a high forward position.

**Hang Arm-** In the V1 technique the hang arm refers to the arm that is on the side that the arms are poling on. So, in a right-sided V1 the hang pole is the right pole.

**Hang Side / Poling Side-** The hang pole is the pole that the skier is poling on in V1 technique.

**High Hands-** Pinky in the eye is a good way to remember how high hands should be. This term is used to refer to the starting position for the hands in: V2, kick double pole, and double pole.



## CROSS-COUNTRY TECHNIQUE FUNDAMENTALS

**Kick Phase-** In classic skiing the kick phase is the phase of a stride where the ski is set down into the snow and kicked off of. In skating the kick phase is the phase where the balancing leg is pushed off to transfer the weight to the other ski.

**Kicking Ski-** The kicking ski is the ski that the skier pushes off of to create power from the legs. This term can be used in both classic and skating alike.

**Kick Zone/ Wax pocket-** The kick zone is the part of the classic ski that has kick wax on it. Kick wax is necessary for classic skis so the skier can gain purchase on the snow when they kick.

**Late kick-** A late kick describes a classic kick that is slow and long rather than quick and snappy. A late kick is inefficient compared to a quick snappy one. A late kick can be diagnosed by seeing if the hips drop down and back during a classic kick. If the hips come back and good body position is broken then the kick is late.

**Non-Poling side-** The non-poling side refers to the side in skating that the skier doesn't pole on. It only refers to the V1 and V2 alternate techniques because in these techniques the skier will only pole on one side or the other.

**Peg-leg-** A peg leg refers to an inactive skating leg. It is fairly typical to see a skier skate really well on one side and "peg-leg" the other side. This "peg-leg" extends prematurely and the skier transfers their weight by falling off of the peg-leg rather than actively pushing off.

**Poling Arm-** The poling arm is the arm that the skier uses to pole with.

**Pole Release-** Letting go of your pole at the end of the poling cycle.

**Push Phase-** The push phase describes the entire extension of the leg that applies power during a skate stride.

**Skating Leg-** The skating leg is the leg that the skier is gliding off of.



# Diagonal Stride

Diagonal Stride is the first gear in the classical transmission. It is used when climbing steeper hills where double poling or kick double pole will only bog the engine down.

## Introduction

There are several important factors that play a key role in properly executing diagonal stride. To make the discussion easier they have been broken down into body position, timing and power. Each of these components play an integral part in executing the stride successfully. It is important that the athlete perfect each component to be successful.

## Body Position

Body position in all sport is important for enabling the athlete to apply power to each motion effectively and efficiently. For this reason body position in diagonal stride is similar to other ski techniques as well as to other sports.

**Feet:** Center the weight across the ball of the foot. If the weight is too far forward onto the toes it will be hard to apply enough force through the kick. If it is too far back it will be hard to apply force quickly enough to be powerful. The skier's weight will shift toward the whole foot in the glide phase of this technique but will quickly shift back to the ball of the foot for the kick. Body position drills should focus on keeping the weight on the ball of the foot.

**Ankles:** The bend in the ankles is vital to directing the power in such a way that the skier is propelled forward down the trail and not up in the air. The degree of bend at the ankle is dependent primarily on terrain - the steeper the terrain the more acute the angle at the ankle. Also, the more force the skier is attempting to deliver the deeper the angle will be.

**Knees:** The angle at the ankle must be closely mimicked by the angle at the knee in order to keep the skier's weight positioned over the feet where that force can be directed through the ski to the snow. Generally skiers struggle to get the proper angle at the ankle rather than at the knee. What results is a knee angle greater than the ankle angle, which places the skier's weight behind the feet. This slows the speed of the kick, loads a great deal of weight on the quadriceps, and diminishes the amount of force applied to the kick.

**Hips:** The hips must be high and forward. When it comes to body position this is accomplished by having the skier's weight over the balls of the feet, maintaining the proper ankle and knee angle, keeping the upper body in a "C" position and by maintaining a quick kick. Look for the hips to remain high and forward through the entirety of the diagonal stride cycle.



## CROSS-COUNTRY TECHNIQUE FUNDAMENTALS

**Core/Back:** The upper-body, from tailbone to head, should form a soft "C" shape. Think Neanderthal man, big foot, gunslinger. Do not think of the Queen of England or of the postural advice of your parents. This "C" position will help keep the hips over the feet, relax the lower back as well as position the muscles of the core to apply force to the poles. This "C" can be very shallow leaving the skier quite upright or rather pronounced putting the skier in an aggressive forward position. The depth of the "C" is also dependent upon terrain with most skiers adapting a more up-right shallow "C" position as the terrain becomes steeper. An "S" shape in the back is the most common core body position mistake and puts a lot of pressure on the lower back. This can also force the hips back. Another common mistake is to fold at the waist into an "r" position. This too forces the hips back and makes it hard to deliver power to the kicking ski.

**Shoulders:** Shoulders should be rounded leaving the arms hanging free and loose in front of the body. Even skiers who ski in a very shallow, upright "C" position should have a forward attitude at the shoulder. This position allows for a smooth pendulum swing of the arms as well as a good position from which to apply both body weight and force to the poles.

**Arms:** In the neutral or starting position the arms should hang loose from the shoulders. The angle of the arm at pole plant should enable the skier to apply maximal force with the core and back as well as the weight of the upper body to the poles. This means that the arm will be much closer to 90 degrees in steeper terrain, and slightly straighter in more gradual terrain. At pole release the hand should be low. The follow through of the arm is dependent upon speed (and terrain). The faster the skier is moving the longer the follow through. The shoulders and hands should reach forward down the track in front of the skier rather than across the skier's body or out to the side.

## Timing

In all techniques the whole body works together to transfer the skier's weight from ski to ski and down the track. Timing of the diagonal stride mimics that of a running stride. The skier's opposite arm and leg are forward together. In skiing the upper-body contributes forward momentum by applying power through the pole as the skier glides, plants, compresses and explodes forward off the kicking ski thus propelling the skier down the track. At the same time as the kicking ski and poling arm pass back behind the skier the opposite arm and leg swing forward (just like running) adding forward momentum to the propulsion down the track. This technique uses the same timing as running but has the added power of the upper-body, and the speed and efficiency of the ski gliding on snow.

The term "kick" is used to describe the forward propulsion of the skier from one ski to the next (as in a runner striding from one foot to the next). This term is misleading, as the skier does not actually kick backwards any more than a runner kicks backwards. This "kick" could better be described as a jump or the propulsive component of the stride, but the term "kick" is utterly entrenched and will do fine.



## CROSS-COUNTRY TECHNIQUE FUNDAMENTALS

The “kick” of the diagonal stride can better be likened to the explosive jump of a long jumper than the foot strike of a runner. In either case imagine the jumper or runner attempting to kick the foot back at take off. In actuality the foot and leg is left behind the athlete in the follow through after the jump or foot strike. The same is true for the skier. In fact the skier’s “kick” is similar to the jumper’s jump in that the foot is planted on the ball of the foot. The athlete then compresses down on the planted foot, and explodes forward off the foot down the trail or, in the case of the jumper, through the air. The time the jumper spends in the air is the time the skier is gliding. The more powerful the jump the further the jumper sails through the air. The more powerful the “jump” for the skier the further the skier can glide. The major difference is the direction of this jump – the jumper must orient some power into the air while the skier is oriented entirely down the trail.

This jumping sequence is so linked as to be a single motion containing all the elements of glide, plant, compress, explode, glide. See more on timing under “Power”.

### **Power**

Power results from force applied quickly. Power relies on being in a position that allows both the application of the skier’s strength and the application of that strength over a short period of time. The above description of body position aims to put the skier in that position. Timing allows power development while maintaining the forward momentum of the skier.

The effective, efficient and repetitive application of power to the skis and poles is the goal of learning proper technique – including body position and timing. Once the skier can grasp the idea of proper body position it must be ingrained through repetition. This repetition will also develop the strength it takes to maintain this position and develop power from it. The practice of proper timing will help develop the speed of force application.

The job of the kick in diagonal stride is two-part. The first part is compressing the ski to the snow, which is vital to gaining the platform from which forward propulsion is performed. The second part is making that forward propulsion powerful enough to propel the skier further and faster than the competition.

A large part of this power comes from weight transfer. This could easily be put in the “body position” section. The entirety of the skier’s weight must be over the gliding / kicking ski for the skier to both glide with relaxed balance and apply maximal power to the kick. In fact the ski will carry 100% of the skier’s body weight in the glide and all the skier’s weight plus the force added by the kick itself during the kick phase.

In diagonal stride the speed of the kick is of primary importance to power development. This is because the skier must execute the kick fast enough in order to stop the ski in the snow without interrupting their forward momentum. In the short period of time that the ski can be stationary while the skier is still moving forward, that ski must be planted, flattened against the snow, and loaded with the force of the skier’s weight plus muscular strength (compressed) until the skier can finally



## CROSS-COUNTRY TECHNIQUE FUNDAMENTALS

explode forward off that foot onto the other ski. This entire sequence must be split-second fast – and that speed is the primary contribution to power in diagonal stride.

Power from the upper body is generated in a similarly quick application of force down onto the pole. The force is developed with a crunching motion of the core as well as the use of the lats and application of the upper body's weight onto the poles.

This motion actually takes place over a longer period of time than the kick as the poling motion begins before the initiation of the kick. Never-the-less power is still developed by applying this force quickly. To enable this, the poling motion should not be overly drawn out. The forward swing of the other arm is simultaneous to the poling arm. It should be swung low, relaxed and directly down the track so its momentum can be best utilized.

### **Training/Racing**

Technique is the tool you use to apply your fitness to the sport. Technique is the screwdriver, fitness is what you use to turn the screwdriver, ski racing is the job you are trying to accomplish. With technique training you are simply trying to develop a good tool to help you get the job done. But fitness comes first. If you are fit enough you can drive the screw into the board with no screwdriver at all. There are many examples of skiers with inefficient technique winning even World Cup ski races – in other words skiers who can drive the screw with no screwdriver – and they do this with fitness. All technique work must be done in conjunction with and as an addition to preparation aimed at aerobic, anaerobic or strength oriented training. Do not mistake having a nice tool chest with being a good carpenter.

### **Drills**

- Hotfeet
- Minson's Last Dance
- No Pole
- Skipping

### **Conclusion**

Proper body position enables proper timing—both of which enable effective, efficient application of power.



# Double pole

Double pole is the third gear in the classical transmission. It is used on gradual uphill and downhill terrain where kick double pole and diagonal stride will over-rev the engine.

## Introduction

There are several important factors that play a key role in properly executing double pole. To make the discussion easier they have been broken down into body position, timing and power. Each of these components plays an integral part in executing the technique successfully. It is important that the athlete perfect each component to be successful.

## Body Position

Body position in all sport is important for enabling the athlete to apply power to each motion effectively and efficiently. For this reason body position in double pole is similar to other ski techniques as well as other sports.

**Feet:** Center the weight across the ball of the foot. If the weight is too far forward onto the toes the front of the ski's kick zone will dig into the snow. If it is too far back it will be hard to apply enough force to the poles to be powerful. In double pole the weight will shift to the whole foot and even to the rear of the foot for the glide portion of the technique, but will shift back to the ball of the foot for the poling portion of the technique. Though time spent on the balls of the feet will be short, body position drills should focus on keeping the weight on the ball of the foot as this is the power-position for this technique.

**Ankles:** The bend in the ankles is vital to directing the power in such a way that the skier is propelled forward down the trail and not up in the air. The degree of bend at the ankle is dependent primarily on terrain - the steeper the terrain the deeper the angle at the ankle. Also the more forward the skier can get in the power position the greater the bend at the ankle will be – until the entire rear of the boot lifts from the ski.

**Knees:** The angle at the knee must be quite shallow as compared to the ankle angle. The legs do contribute to the power applied to the poles, but this contribution needs to be balanced with the requirement expected from the legs in diagonal stride. So limit the use of the legs to a slight bend at the knee. When the knees bend deeply, there is a lot of body weight to lift when returning to a proper starting position.

**Hips:** The hips must be high and forward. When it comes to body position this is accomplished by having the skier's weight over or in front of the balls of the feet, maintaining the proper ankle angle, keeping the upper body in a "C" position and by seeking a high position with the hands and a forward position with the elbows.



## CROSS-COUNTRY TECHNIQUE FUNDAMENTALS

Look for the hips to remain high and forward through the entirety of the double pole cycle – even at the end of the cycle when the poling motion is finished.

**Core/Back:** The upper-body, from tailbone to head, should form a soft “C” shape. Think Neanderthal man, big foot, gunslinger. Do not think of the Queen of England or of the postural advice of your parents. This “C” position will help keep the hips over the feet, relax the lower back as well as position the muscles of the core to apply force to the poles. This “C” can be very shallow leaving the skier quite upright or rather pronounced putting the skier in an aggressive forward position. Seek to stay in a more upright position where the hands are high and the body is working from a high position to a middle position rather than from a middle position to a low position. A common mistake is to fold at the waist into an “r” position. This forces the hips back and slows the cycle time of the double pole as well as steals power from the optimal use of the core muscles.

**Shoulders:** Shoulders should be rounded leaving the arms hanging free and loose in front of the body. This position is ideal for applying both body weight and force to the poles.

**Arms:** In the neutral or starting position the arms should hang loose from the shoulders. The angle of the arms at pole plant should enable the skier to apply maximal force with the core and back as well as the weight of the upper body to the poles. This means that the arm will often be close to or less than 90 degrees. This is terrain dependent, with steeper terrain demanding a sharper angle. At pole release the hands should be low. The follow through of the arms is dependent upon speed (and terrain). The faster the skier is moving the longer the follow through can be – but doesn’t necessarily need to be. Keep the follow through short enough to help keep the hips high and to return to the poling position again as quickly as the terrain dictates.

## Timing

In double pole the upper-body is used to apply power onto the poles to propel the skier down the trail. The key to double pole timing is in the application of power to the poles. With the arms and body in the proper position the body weight falls on top of the poles as the core contracts, thus crunching down powerfully on top of the poles. The back and arms simultaneously push on the poles. This application of force must be quick and timing tight in order to be maximally powerful. The return of the upper body to a high start position is also important to this technique. The forward arm swing must be dynamic and in synchrony with the return of the upper-body to a high position in order to gain forward momentum and in order to return to a high position quickly and smoothly. See more on timing under “Power”.





## Power

Power results from force applied quickly. Power relies on being in a position that allows both the application of the skier's strength and the application of that strength over a short period of time. The above description of body position aims to put the skier in that position. Timing allows power development while maintaining the forward momentum of the skier.

The effective, efficient and repetitive application of power to the poles is the goal of learning proper technique – including body position and timing. Once the skier can grasp the idea of proper body position it must be ingrained through repetition. This repetition will also develop the strength it takes to maintain this position and develop power from it. The practice of proper timing will help develop the speed of force application.

A good mantra for double poling is "high hands." The power position in double pole is the hands high, arms at 90 or less degrees, poles against or parallel with the forearms, and body leaning from the ankles dramatically forward. From this start position the body's weight will crash down onto the poles, the core will crunch and the arms and back will contribute force simultaneously. The poles will connect with the snow delivering all this power directly to the snow. With the arms held in tight there will be minimal power lost to a collapse of the arms, and the forward movement of the skier will push the tips of the poles back and the handles down translating power to forward movement.

Hands that start low steal most of the body weight as well as the ability of the core muscles to do their job at the start of the poling motion. At the same time the skier will not be able to seek as great a forward lean. While the pole angle more immediately translates to forward motion (baskets planted further back) there cannot be as much force applied to the poles. This force is applied late in the cycle and leaves the skier in a very low finishing position.

It should be noted that the arms can be planted at straighter than 90 degrees. In this case, however, some of the applied force will be given away as the arms collapse to a structurally strong position. The force in this case cannot be applied as quickly, thereby resulting in less power. Cycle time will also increase making it difficult to maintain momentum as the terrain goes uphill.

## Training/Racing

Technique is the tool you use to apply your fitness to the sport. Technique is the screwdriver, fitness is what you use to turn the screwdriver, ski racing is the job you are trying to accomplish. With technique training you are simply trying to develop a good tool to help you get the job done. But fitness comes first. If you are fit enough you can drive the screw into the board with no screwdriver at all. There are many examples of skiers with inefficient technique winning even World Cup ski races – in other words skiers who can drive the screw with no screwdriver – and they do this with fitness. All technique work must be done in conjunction with and as an addition to preparation aimed at aerobic, anaerobic or strength oriented training. Do not mistake having a nice tool chest with being a good carpenter.



## CROSS-COUNTRY TECHNIQUE FUNDAMENTALS

### **Drills**

- Locked 'n Loaded
- Standing Broad Jump
- Bathroom Scale

### **Conclusion**

Proper body position enables proper timing—both of which enable effective, efficient application of power.



# Kick Double Pole

Kick double pole is the second gear in the classical transmission. It is used on gradual-uphill terrain when double pole would bog the engine down or diagonal stride would over-rev the engine.

## Introduction

There are several important factors that play a key role in properly executing kick double pole. To make the discussion easier they have been broken down into body position, timing and power. Each of these components plays an integral part in executing the technique successfully. It is important that the athlete perfect each component to be successful.

## Body Position

Body position in all sport is important for enabling the athlete to apply power to each motion effectively and efficiently. For this reason body position in kick double pole is similar to other ski techniques as well as to other sports.

**Feet:** Center the weight across the ball of the foot. If the weight is too far forward onto the toes it will be hard to apply enough force through the kick. If it is too far back it will be hard to apply force quickly enough to be powerful. In kick double pole the weight will shift to the whole foot after the double pole portion of the technique, but will shift back to the ball of the foot for the kick. Body position drills should focus on keeping the weight on the ball of the foot.

**Ankles:** The bend in the ankles is vital to directing the power in such a way that the skier is propelled forward down the trail and not up in the air. The degree of bend at the ankle is dependent primarily on terrain - the steeper the terrain the deeper the angle at the ankle. Also, the more force the skier is attempting to deliver the deeper the angle will be.

**Knees:** The angle at the ankle must be closely mimicked by the angle at the knee in order to keep the skier's weight positioned over the feet where the force can be directed through the ski to the snow. Generally skiers struggle to get the proper angle at the ankle rather than at the knee. What results is a knee angle greater than the ankle angle, which places the skier's weight behind the feet. This slows the speed of the kick, loads a great deal of weight on the quadriceps, and diminishes the amount of force applied to the kick.

**Hips:** The hips must be high and forward. When it comes to body position this is accomplished by having the skier's weight over the balls of the feet, maintaining the proper ankle and knee angle, keeping the upper body in a "C" position and by maintaining a quick kick.



Look for the hips to remain high and forward through the entirety of the double pole kick cycle – even after the double pole portion of the technique.

**Core/Back:** The upper-body, from tailbone to head, should form a soft “C” shape. Think Neanderthal man, big foot, gunslinger. Do not think of the Queen of England or of the postural advice of your parents. This “C” position will help keep the hips over the feet, relax the lower back as well as position the muscles of the core to apply force to the poles. This “C” should be very shallow leaving the skier quite upright or rather pronounced, thereby putting them in an aggressive forward position. The depth of the “C” is also dependent upon terrain with most skiers adapting to a more up-right shallow “C” position as the terrain becomes steeper.

An “S” shape in the back is the most common core body position mistake and puts a lot of pressure on the lower back as well as forces the hips back. Another common mistake is to fold at the waist into an “r” position. This too forces the hips back and makes it hard to deliver power to the kicking ski or onto the poles in the double pole.

**Shoulders:** Shoulders should be rounded leaving the arms hanging free and loose in front of the body. Even skiers who ski in a very shallow, upright “C” position should have a forward attitude at the shoulder. This position allows for a smooth pendulum swing of the arms as well as a good position from which to apply both body weight and force to the poles.

**Arms:** In the neutral or starting position the arms should hang loose from the shoulders. The angle of the arms at pole plant should enable the skier to apply maximal force with the core and back as well as the weight of the upper body to the poles. This means that the arm will be close to or greater than 90 degrees. At pole release the hands should be low. The follow through of the arm is dependent upon speed (and terrain). The faster the skier is moving the longer the follow through. Keep the follow through short to help keep the hips high at the end of the double pole.

## Timing

In all techniques the whole body works together to transfer the skier’s weight from ski to ski and down the track. The kick double pole begins with a double pole. This leaves the arms slightly behind the skier, the upper body in a relatively low position and the skier’s weight spread evenly over both skis. The skier must then transfer all their weight to the kicking ski, plant, compress and explode forward off the kicking ski (as in diagonal stride) in absolute synchrony with the forward swing of the arms, the return of the upper body back to a high double pole position, and the forward swing of the back leg. The opposite leg becomes the kicking leg in the next cycle.

Please see the Diagonal Stride PDF for an explanation of the term “kick” and the actual timing of the kick. In kick double pole the kick is very similar to that of the diagonal stride kick. In the same way the “kick” can be likened to the explosive jump of a long jumper’s jump in that the weight is planted



on the ball of the foot, the athlete compresses down on the planted foot, and then explodes forward off the foot down the trail or, in the case of the jumper, through the air. In both diagonal stride and kick double pole the “kick” propels the skier down the track and onto the other ski and into an extended position. In kick double pole the skier is now gliding on one ski with both arms forward in a double pole position. The skier applies a double pole similar to a normal double pole. Please see the Double Pole PDF for further explanation of this portion of the technique. See more on timing under “Power”.

## **Power**

Power results from force applied quickly. Power relies on being in a position that allows both the application of the skier’s strength and the application of that strength over a short period of time. The above description of body position aims to put the skier in that position. Timing allows power development while maintaining the forward momentum of the skier. The effective, efficient and repetitive application of power to the skis and poles is the goal of learning proper technique – including body position and timing. Once the skier can grasp the idea of proper body position it must be ingrained through repetition. This repetition will also develop the strength it takes to maintain this position and develop power from it. The practice of proper timing will help develop the speed of force application.

The job of the kick in kick double pole is the same as in diagonal stride (Please see the Diagonal Stride PDF). Just as in diagonal stride the speed of the kick is of primary importance to power development. At the same time weight shift is just as vital. Many people attempt to kick with their weight spread evenly over both feet in the double pole kick. All the skier’s weight must be on the kicking ski in order to apply maximal power to that ski. In fact the ski will receive 100% of the skier’s body weight plus the force added by the kick itself.

In kick double pole the arm swing forward must be as quick as the kick itself. This powerful forward swing will help gain forward momentum. This brings the skier into a double pole position. Please see the Double Pole PDF for an in depth explanation of the technique. In kick double pole the double pole will likely be notably shallower with less follow through and less upper body compression than in regular double pole. This is due to the technique being carried out on generally steeper terrain and the need for the hips to stay high for the kick portion of the technique.

## **Training/Racing**

Technique is the tool you use to apply your fitness to the sport. Technique is the screwdriver, fitness is what you use to turn the screwdriver, ski racing is the job you are trying to accomplish. With technique training you are simply trying to develop a good tool to help you get the job done. But fitness comes first. If you are fit enough you can drive the screw into the board with no screwdriver at all. There are many examples of skiers with inefficient technique winning even World Cup ski races – in other words skiers who can drive the screw with no screwdriver – and they do this with fitness. All technique work must be done in conjunction with and as an addition to preparation aimed



## CROSS-COUNTRY TECHNIQUE FUNDAMENTALS

at aerobic, anaerobic or strength oriented training. Do not mistake having a nice tool chest with being a good carpenter.

### **Drills**

- Locked 'n Loaded
- Ankle Float

### **Conclusion**

Proper body position enables proper timing—both of which enable effective, efficient application of power.



# V1

V1 is the first gear in the skating transmission. It is used when climbing steeper hills where V2 or V2 alternate will only bog the engine down. All skate techniques have small variations that make them more versatile over different terrain. Where this is especially true for V2 and V2 alternate, it is not as true for V1 which is an uphill technique. As skiers become stronger it is reserved for only very steep up hills.

## Introduction

There are several important factors that play a key role in properly executing the V1 technique. To make the discussion easier they have been broken down into body position, timing and power. Each of these components plays an integral part in executing the technique successfully. It is important that the athlete perfect each component to be successful.

## Body Position

Body position in all sport is important for enabling the athlete to apply power to each motion effectively and efficiently. For this reason body position in V1 is similar to other ski techniques as well as other sports.

**Feet:** Center the weight across the whole foot, with slightly more than half of the weight toward the ball of the foot. If the weight is too far forward onto the toes it will dig the front of the ski into the snow and plow. If it is too far back it will force the hips back and make the skier carry a lot of weight on the quadriceps. The skier's weight will shift toward the forefoot as the ski is set down and will quickly shift back across the whole foot for the majority of the push phase of the skate. At the end of the push the weight will again tend toward the front of the foot but most of the power comes from skating off the whole foot.

**Ankles:** The bend in the ankles is vital to positioning the skier in a powerful pushing position and into a position that prevents the ski from stalling out as it moves across the snow. The angle at the ankle is dependent primarily on terrain - the steeper the terrain the more acute the angle at the ankle. Also, the more force the skier is attempting to deliver the deeper the angle will be.

**Knees:** The angle at the ankle must be accompanied by an aggressive angle behind the knee in order to keep the skier's weight positioned over the feet where that force can be directed through the ski to the snow. Generally skiers struggle to get the proper angle at the ankle rather than at the knee. What results is a knee angle smaller than the ankle angle, which places the skier's weight behind the feet. This loads a great deal of weight on the quadriceps, and diminishes the amount of force applied to the push. The skier can think of driving the knee forward or pressing with the knee to accomplish this position.



## CROSS-COUNTRY TECHNIQUE FUNDAMENTALS

**Hips:** The hips must be over the feet. When it comes to body position this is accomplished with knee drive, maintaining the proper ankle and knee angle, and keeping the upper body in a "C" position. High hips position the femur bone nearly vertical, thereby supporting body weight on bone structure instead of on the musculature.

**Core/Back:** The upper-body, from tailbone to head, should form a soft "C" shape. Think Neanderthal man, big foot, gunslinger. Do not think of the Queen of England or of the postural advice of your parents. This "C" position will help keep the hips over the feet, relax the lower back as well as position the muscles of the core to apply force to the poles. This "C" can be either very shallow leaving the skier upright, or rather pronounced putting the skier in an aggressive forward position. The depth of the "C" is dependent upon terrain. Most skiers will adapt a more up-right, shallow "C" position as the terrain becomes steeper.

Folding at the waist into an "r" position is the most common error skiers make. This forces the hips back and generally increases the angle at the ankle.

**Shoulders:** Shoulders should be rounded leaving the arms hanging free and loose in front of the body. Even skiers who ski in a very shallow, upright "C" position should have a forward attitude at the shoulder. This position allows for a smooth pendulum swing of the arms as well as a good position from which to apply both body weight and force to the poles.

**Arms:** In the neutral or starting position the arms should hang loose from the shoulders. The angle of the arms at pole plant should enable the skier to apply maximal force with the core and back as well as the weight of the upper body to the poles. This means that the hang arm will be no greater than 90 degrees at pole plant. The push arm should be slightly lower and more forward, placed in a similar position to diagonal stride. The angle is much bigger. At pole release the hands should be low. The follow through of the arms is dependent upon speed and terrain. The faster the skier is moving the longer the follow through. Because V1 is used in steep terrain it is most likely that follow through will be short and hand return immediate.

Remember that the V1 technique uses an offset position of the hands. The high hand belongs to what's called the hang arm. The hang arm delivers most the poling power. The hand should be close to the head at the initiation of the poling motion. The other hand is planted lower. Be watchful that this hand does not creep too far across the skier's body.

## Timing

In all techniques the whole body works together to transfer the skier's weight from ski to ski and down the track. The V1 technique is described in terms of the hang arm. If it is the skier's left hand that is placed high and next to the head at the start of the poling motion, the hang side (also called poling side) is the left side.





## CROSS-COUNTRY TECHNIQUE FUNDAMENTALS

On the poling-side the entire upper body and poling-side leg push simultaneously down and over to transfer weight to the non-poling side. There is little to no time spent inactively gliding in the V1 technique. As soon as the skier's weight is shifted onto the non-poling side the arms begin to swing back up and forward as the skier begins the push-skate back onto the poling side. When the skier transfers weight back to the poling side the poles and poling-side ski meet the snow simultaneously. While for some skiers the poles plant a little earlier than the ski, and for others the opposite is true, for most it is simultaneous. In all cases the push from each leg is as equal, smooth and powerful as possible and the use of the upper-body is dynamic through a relatively shallow compression and short follow-through.

### **Power**

Power results from force applied quickly. Power relies on being in a position that allows both the application of a skier's strength and the application of that strength over a short period of time. The above description of body position aims to put the skier in that position. Timing allows power development while maintaining the forward momentum of the skier.

The effective, efficient and repetitive application of power to the skis and poles is the goal of learning proper technique – including body position and timing. Once the skier can grasp the idea of proper body position it must be ingrained through repetition. This repetition will also develop the strength it takes to maintain this position and develop power from it. The practice of proper timing will help develop the speed of force application.

Power is developed on the poles through the application of body weight to the poles. This happens through the dynamic use of core, back and to a lesser degree the arms themselves. A lot of power comes from the upper body in the V1 technique. Some skiers rely more on the upper body than others. A common mistake is to let the use of the legs suffer by focusing too much on using the upper body. Ideally, as is the case with all techniques, the whole body not only works together, but the work of one complements and aids the work of the other.

Power to the skis is achieved through a push position similar to that used by speed skaters. Whereas in the classical diagonal stride the ski must stop for the kick, in skating the skis must never stop. The biggest error in V1 power application is a weak-side – strong-side approach. This means relying on the poling side to build momentum or power and using the non-poling side as a recovery side. This results in a loss of momentum on the recovery side. It is much more efficient to maintain momentum than to build it, lose it, and build it again. This is similar to what cyclists call peddling in squares – where you only apply force on the down stroke. The best cyclists apply force around the whole circle resulting in smooth continuous power and often (as in the example of Lance Armstrong) at a higher cadence.

While the cyclist peddling in squares can still rely on the downward bound leg to apply force while the upward bound leg "rests" the skier has nothing to maintain momentum with while on the "recovery side". Generally the weak-side approach means the skier will stand up or peg-leg on the recovery side leg. The weak-side ski decelerates as the skier stands up on it. To correct this the

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## CROSS-COUNTRY TECHNIQUE FUNDAMENTALS

skier must focus on driving with the non-poling side knee as soon as that ski hits the snow and until weight is transferred back to the poling side. The skier may look at this concept as a volley of the body weight back and forth, like a tennis ball, in which the legs are the rackets. Being dynamic with the return of the arms to the poling side and synchronizing that arm swing with the skate will help maintain momentum on the non-poling side.

A large part of power development comes from weight transfer. This could easily be put in the "body position" section. Optimally the entirety of the skier's weight must be over the gliding / pushing ski for the skier to both glide with relaxed balance and apply maximal power to the skate. In skating, weight transfer is achieved through the shifting of the hips from side to side. Many focus exclusively on shifting the weight with the upper body. This can result in a tipping or twisting of the upper body but no real weight transfer. The body's mass is best moved by shifting the hips.

In all skate techniques complete weight shift (where the skier is actually directly on top of the ski at the beginning of the push phase) can compete with the need to shift weight more quickly to avoid bogging down on steeper terrain. This is especially true in the V1 technique because it is used almost exclusively in steep terrain. One way to accomplish both good weight transfer and maintain momentum is to keep the feet in a wide position (never letting the feet come close together). When this is the case the skier's body will stay inside the feet and the skier will never be directly on top of the ski. Weight shift will still be effective however, so long as the hips are shifting from side to side and pushing against one ski and then the other.

### **Training/Racing**

Technique is the tool you use to apply your fitness to the sport. Technique is the screwdriver, fitness is what you use to turn the screwdriver, ski racing is the job you are trying to accomplish. With technique training you are simply trying to develop a good tool to help you get the job done. But fitness comes first. If you are fit enough you can drive the screw into the board with no screwdriver at all. There are many examples of skiers with inefficient technique winning even World Cup ski races – in other words skiers who can drive the screw with no screwdriver – they do this with fitness. All technique work must be done in conjunction with and as an addition to preparation aimed at aerobic, anaerobic or strength oriented training. Do not mistake having a nice tool chest with being a good carpenter.

### **Drills**

- Four Square
- Hybrid
- Minson's Last Dance
- Saddle Feet
- No Pole



CROSS-COUNTRY  
TECHNIQUE FUNDAMENTALS

## **Conclusion**

Proper body position enables proper timing—both of which enable effective, efficient application of power.





## V2

V2 is the second gear in the skating transmission. It is used in flat to uphill terrain where V1 would over rev the engine and V2 alternate would bog the engine down. All skate techniques have small variations that make them more versatile over different terrain. This is especially true for V2 and V2 alternate.

### Introduction

There are several important factors that play a key role in properly executing the V2 technique. To make the discussion easier they have been broken down into body position, timing and power. Each of these components plays an integral part in executing the technique successfully. It is important that the athlete perfect each component to be successful.

### Body Position

Body position in all sport is important for enabling the athlete to apply power to each motion effectively and efficiently. For this reason body position in V2 is similar to other ski techniques as well as to other sports.

**Feet:** Center the weight across the whole foot, with slightly more than half of the weight over the ball of the foot. If the weight is too far forward onto the toes it will dig the front of the ski into the snow and plow. If it is too far back it will force the hips back and make the skier carry a lot of weight on the quadriceps. The skier's weight will shift toward the forefoot as the ski is set down and will quickly shift back across the whole foot for the majority of the push phase of the skate. At the end of the push the weight will again tend toward the front of the foot but most of the power comes from skating off the whole foot.

**Ankles:** The bend in the ankles is vital to positioning the skier in a powerful pushing position and into a position that prevents the ski from stalling out as it moves across the snow. The degree of bend at the ankle is dependent primarily on terrain - the steeper the terrain the more acute the angle at the ankle. Also, the more force the skier is attempting to deliver the deeper the angle will be.

**Knees:** The angle at the ankle must be closely mimicked by the angle at the knee in order to keep the skier's weight positioned over the feet where the force can be directed through the ski to the snow. Generally skiers struggle to get the proper angle at the ankle rather than at the knee. What results is a knee angle smaller than the ankle angle, which places the skier's weight behind the feet. This loads a great deal of weight on the quadriceps, and diminishes the amount of force applied to the push. The skier can think of driving the knee forward or pressing with the knee to accomplish this position.



Here is a contrast between two skating techniques: In V1 the skier maintains a lower position throughout the skating cycle but in V2 the skier will use a higher position in general and, especially when moving fast, rise up on a straighter or straight leg prior to the skating push.

**Hips:** The hips must be over the feet. When it comes to body position this is accomplished with knee drive, maintaining the proper ankle and knee angle, and keeping the upper body in a "C" position.

**Core/Back:** The upper-body, from tailbone to head, should form a soft "C" shape. Think Neanderthal man, big foot, gunslinger. Do not think of the Queen of England or of the postural advice of your parents. This "C" position will help keep the hips over the feet, relax the lower back as well as position the muscles of the core to apply force to the poles. This "C" can be very shallow leaving the skier quite upright or rather pronounced putting the skier in an aggressive forward position. The depth of the "C" is also dependent upon terrain with most skiers adapting a more up-right shallow "C" position as the terrain becomes steeper. In V2 this "C" shape tends to be less extreme than in V1.

Folding at the waist into an "r" position is the most common error skiers tend to make. This forces the hips back and generally increases the angle at the ankle.

**Shoulders:** Shoulders should be rounded leaving the arms hanging free and loose in front of the body. Even skiers who ski in a very shallow, upright "C" position should have a forward attitude at the shoulder. This position allows for a smooth pendulum swing of the arms as well as a good position from which to apply both body weight and force to the poles.

**Arms:** In the neutral or starting position the arms should hang loose from the shoulders. The angle of the arms at pole plant should enable the skier to apply maximal force with the core and back as well as the weight of the upper body to the poles. This means that the arm will be close to and generally less than 90 degrees. At pole release the hands should be low. The follow through of the arms is dependent upon speed and terrain. The faster the skier is moving the longer the follow through can be – but doesn't necessarily need to be. Keep the follow through short enough to help keep the hips high and to return to the poling position again as quickly as the terrain dictates. The V2 technique uses a poling position and motion very similar to double pole.

## Timing

In all techniques the whole body works together to transfer weight from ski to ski and down the track. In V2 the upper-body pushes in a double pole motion as the skier pushes simultaneously with the skating leg onto the gliding ski. The double pole and the skating push is complete as the gliding ski hits the snow and the skier's weight is transferred to that ski. While the skier is gliding the arms and whole body return to the high position to initiate the double pole and skate-push that will take the skier back onto the initial ski. In this way the V2 technique is entirely symmetrical, with the upper and lower body working together and in the same way on both sides. The push from the



## CROSS-COUNTRY TECHNIQUE FUNDAMENTALS

upper-body must be dynamic and powerful and the depth of compression variable depending on terrain. The skate push with the legs must also be dynamic and from a high to low position.

The biggest mistake in the V2 technique is a matter of timing. Often skiers will attempt to pole down the skating leg (like a one-legged doublepole), complete or nearly complete the poling motion and then begin the skating motion with the leg and weight shift to the other leg. To correct this the skier must remember that the whole body works together at all times to transfer weight from ski to ski and down the track.

### **Power**

Power results from force applied quickly. Power relies on being in a position that allows both the application of a skier's strength and the application of that strength over a short period of time. The above description of body position aims to put the skier in that position. Timing allows power development while maintaining the forward momentum of the skier.

The effective, efficient and repetitive application of power to the skis and poles is the goal of learning proper technique – including body position and timing. Once the skier can grasp the idea of proper body position it must be ingrained through repetition. This repetition will also develop the strength it takes to maintain this position and develop power from it. The practice of proper timing will help develop the speed of force application.

Power is developed on the poles through the application of body weight to the poles, and the dynamic use of core and back. To a lesser degree, the arms themselves also add power. A lot of power comes from the upper body in the V2 technique. Some skiers rely more on the upper body than others. A common mistake is to let the use of the legs suffer by focusing too much on using the upper body. Ideally, as is the case with all techniques, the whole body not only works together but the work of one complements and aids the work of the other.

Power to the skis is achieved through a drop of weight down on to the ski from a high position into a push position similar to that used by speed skaters. Whereas in the classical diagonal stride the ski must stop for the kick, in skating the skis must never stop. Therefore the skier will not spend time on a straight leg, but will glide with proper angles at the ankle and knee and then use the rise onto a straight leg as a quick initiation for the skate push. Being dynamic with the return of the arms to a high position helps enable this quick initiation. Just as in double pole this arm return will lend forward momentum to the skier.

A large part of power development comes from weight transfer. This could easily be put in the "body position" section. Optimally the entirety of the skier's weight must be over the gliding / pushing ski for the skier to both glide with relaxed balance and apply maximal power to the skate. In skating weight transfer is achieved through the shifting of the hips from side to side. Many focus exclusively on shifting the weight with the upper body. This can result in a tipping or twisting of the upper body but no real weight transfer. The body's mass is best moved by shifting the hips.



## CROSS-COUNTRY TECHNIQUE FUNDAMENTALS

In all skate techniques complete weight shift (where the skier is actually directly on top of the ski at the beginning of the push phase) can compete with the need to shift weight more quickly to avoid bogging down on steeper terrain. This can even be true in the V2 technique because while it is a technique where complete weight transfer is mandatory, at high speed it is still used in uphill and even steep terrain by strong skiers. Just like in the V1 a good way to accomplish both good weight transfer and maintain momentum is to keep the feet in a wide position (never letting the feet come close together). When this is the case the skier's body will stay inside the feet and so the skier will never be directly on top of the ski. Weight shift will still be effective however so long as the hips are shifting from side to side and pushing against one ski and then the other.

On faster terrain the skier should seek complete weight transfer. At the start position of the technique the skier will be completely over a single ski. While many skiers begin transferring their weight prior to initiating the skate/poling motion, the way to maximize power is to begin the initiation of the poling motion and skate with the weight directly over one ski. This will feel like the weight is dropping directly down on the ski and poles. This drop initiates the immediate transfer of weight to the other ski.

### **Training/Racing**

Technique is the tool you use to apply your fitness to the sport. Technique is the screwdriver, fitness is what you use to turn the screwdriver, ski racing is the job you are trying to accomplish. With technique training you are simply trying to develop a good tool to help you get the job done. But fitness comes first. If you are fit enough you can drive the screw into the board with no screwdriver at all. There are many examples of skiers with inefficient technique winning even World Cup ski races – in other words skiers who can drive the screw with no screwdriver – they do this with fitness. All technique work must be done in conjunction with and as an addition to preparation aimed at aerobic, anaerobic or strength oriented training. Do not mistake having a nice tool chest with being a good carpenter.

### **Drills**

- Locked 'n Loaded
- Agility and Stability
- Sprint Skate

### **Conclusion**

Proper body position enables proper timing—both of which enable effective, efficient application of power.





## V2 Alternate

V2 Alternate is the third gear in the skating transmission. It is used in gradual terrain where V1 and V2 would over rev the engine. All skate techniques have small variations that make them more versatile over different terrain. This is especially true for V2 and V2 alternate. The V2 alternate and a V2 alternate / V1 hybrid is being used on steeper and steeper uphill terrain.

### Introduction

There are several important factors that play a key role in properly executing the V2 Alternate (V2 alt) technique. To make the discussion easier they have been broken down into body position, timing and power. Each of these components plays an integral part in executing the technique successfully. It is important that the athlete perfect each component to be successful.

### Body Position

Body position in all sport is important for enabling the athlete to apply power to each motion effectively and efficiently. For this reason body position in V2 alt is similar to other ski techniques as well as other sports.

**Feet:** Center the weight across the whole foot, with a bit more over the ball of the foot. If the weight is too far forward onto the toes it will dig the front of the ski into the snow and plow. If it is too far back it will force the hips back and make the skier carry a lot of weight on the quadriceps. The skier's weight will shift toward the forefoot as the ski is set down and will quickly shift back across the whole foot for the majority of the push phase of the skate. At the end of the push the weight will again tend toward the front of the foot but most of the power comes from skating off the whole foot.

**Ankles:** The bend in the ankles is vital to positioning the skier in a powerful pushing position and into a position that prevents the ski from stalling out as it moves across the snow. The degree of bend at the ankle is dependent primarily on terrain - the steeper the terrain the more acute the angle at the ankle. Also the more force the skier is attempting to deliver the deeper the angle will be.

**Knees:** The angle at the ankle must be closely mimicked by the angle at the knee in order to keep the skier's weight positioned over the feet where the force can be directed through the ski to the snow. Generally skiers struggle to get the proper angle at the ankle rather than at the knee. What results is a knee angle smaller than the ankle angle, which places the skier's weight behind the feet. This loads a great deal of weight on the quadriceps and diminishes the amount of force applied to the push. The skier can think of driving the knee forward or pressing with the knee to accomplish this position.



Here is a quick contrast of the three techniques: In the V1 technique the skier maintains a lower position throughout the skating cycle. In, V2 the skier will use a higher position in general and, especially when moving fast, rise up on a straighter/straight leg prior to the skating push. In the V2 alt technique a combination of V1 and V2 leg positions are used. (see timing).

**Hips:** The hips must be over the feet. When it comes to body position this is accomplished with knee drive, maintaining the proper ankle and knee angle, and keeping the upper body in a "C" position.

**Core/Back:** The upper-body, from tailbone to head, should form a soft "C" shape. Think Neanderthal man, big foot, gunslinger. Do not think of the Queen of England or of the postural advice of your parents. This "C" position will help keep the hips over the feet, relax the lower back as well as position the muscles of the core to apply force to the poles. This "C" can be very shallow leaving the skier quite upright or rather pronounced, thereby putting the skier in an aggressive forward position. The depth of the "C" is also dependent upon terrain with most skiers adapting a more up-right shallow "C" position as the terrain becomes steeper. In V2 alternate this "C" shape tends to be less extreme than in V1.

Folding at the waist into an "r" position is the most common error skiers tend to make. This forces the hips back and generally increases the angle at the ankle.

**Shoulders:** Shoulders should be rounded leaving the arms hanging free and loose in front of the body. Even skiers who ski in a very shallow, upright "C" position should have a forward attitude at the shoulder. This position allows for a smooth pendulum swing of the arms as well as a good position from which to apply both body weight and force to the poles.

**Arms:** In the neutral or starting position the arms should hang loose from the shoulders. The angle of the arms at pole plant should enable the skier to apply maximal force with the core and back, and the weight of the upper body to the poles. This means that the arm will be close to and generally less than 90 degrees. At pole release the hands should be low. The follow through of the arms is dependent upon speed (and terrain). The faster the skier is moving the longer the follow through can be – but doesn't necessarily need to be. Keep the follow through short enough to help keep the hips high and to return to the poling position again as quickly as the terrain dictates (see timing). The V2 alt technique uses a poling position and motion very similar to the classical kick double pole. This is true with the return of the arms as well. In V2 alt the return of the arms is timed with the skate from the non-poling side just as it is timed with the kick in kick double pole.

## Timing

In all techniques the whole body works together to transfer the weight from ski to ski and down the track. In V2 alternate, the method of propulsion on the poling-side is exactly the same as it is in V2. The upper-body and lower body compress together to transfer weight to the gliding ski. However, in



V2 alternate the skier does not return to a high position on the gliding ski but stays in a relatively low position. The return to the poling-side is accomplished from this lower position with a skating push aided by the momentum of the arms swinging up, forward and back over to the poling-side ski. The synchronization of this forward arm swing and skate push is integral to the effectiveness of this technique.

V2 alternate and V1 are similar in that there is a poling side and a non-poling side. That is why it is called V2 alternate. Skiers use the V2 on the poling side but the advantage of this technique occurs on the non-poling side. While the skier is gliding on the non-poling side ski the arms are behind them. The skier rides that ski in a relatively low position. From this position the arms swing dynamically forward in synchrony with a powerful skate push back onto the poling side ski. The synchrony of the dynamic arm swing and skate push is what makes this technique so fast. On the poling side the whole body returns to the high position to initiate the double pole and skate-push that will take the skier back to the non-poling side. While the V2 alternate utilizes the double pole on only one side it is symmetrical in that the upper and lower body work together powerfully on both sides.

As in V2 the push from the upper-body must be dynamic and powerful and the depth of compression variable depending on terrain. The skate push with the legs must also be dynamic and from a high to low position. On the non-poling side the arm swing is always a dynamic and non-stop motion.

The biggest mistake in the V2 alternate technique is a matter of timing. On the poling side skiers will often attempt to pole down the skating leg (like a one-legged double pole), complete or nearly complete the poling motion and then begin the skating motion and weight shift to the other leg. To correct this the skier must remember that the whole body works together at all times to transfer weight from ski to ski and down the track. On the non-poling side skiers tend to make the same mistake they make in V1. They use the non-poling leg for a rest break. This not only kills momentum in the glide but also does not enable the arms or leg to work together in shifting weight back to the poling side. The arms will not swing dynamically from the follow-through position, and the skier will simply fall back over to the poling side rather than skate back over to the poling side. This "variation" of the V2 alternate is very common and steals all power and speed from the technique.

## **Power**

Power results from force applied quickly. Power relies on being in a position that allows both the application of a skier's strength and the application of that strength over a short period of time. The above description of body position aims to put the skier in that position. Timing allows power development while maintaining the forward momentum of the skier.

The effective, efficient and repetitive application of power to the skis and poles is the goal of learning proper technique – including body position and timing. Once the skier can grasp the idea of proper body position it must be ingrained through repetition. This repetition will also develop the strength it takes to maintain this position and develop power from it. The practice of proper timing will help develop the speed of force application.



## CROSS-COUNTRY TECHNIQUE FUNDAMENTALS

Power is developed on the poles through the application of body weight, as well as the dynamic use of core and back. To a lesser degree, the arms also add power themselves. A lot of power comes from the upper body in the V2 alternate technique. Some skiers rely more on the upper body than others. A common mistake is to let the use of the legs suffer by focusing too much on using the upper body. Ideally, as is the case with all techniques, the whole body works together where the contributions of the upper body complements and aids the work of the lower body, and vice versa.

In the V2 alt the upper body also contributes power to the technique in the arm swing. When the forward swing of the arms is timed with the skate push on the non-poling side and is dynamic and quick, the skate will be more dynamic, quick and powerful.

Power to the ski on the poling side is achieved through a drop of weight down on to the ski from a high position into a push position similar to that used by speed skaters. Whereas in the classical diagonal stride the ski must stop for the kick, in skating the skis must never stop. Therefore the skier will not spend time on a straight leg, but will glide with proper angles at the ankle and knee and then use the rise onto a straight leg as a quick countermovement to the skate push.

A large part of power development comes from weight transfer. This could easily be put in the "body position" section. Optimally the entirety of the skier's weight must be over the gliding / pushing ski for the skier to both glide with relaxed balance and apply maximal power to the skate. In skating weight transfer is achieved through the shifting of the hips from side to side. Many focus exclusively on shifting the weight with the upper body. This can result in a tipping or twisting of the upper body but no real weight transfer. The body's mass is best moved by shifting the hips from side to side.

In all skate techniques complete weight shift (where the skier is actually directly on top of the ski at the beginning of the push phase) can compete with the need to shift weight more quickly to avoid bogging down on steeper terrain. This can even be true in the V2 alt. While it is a technique where complete weight transfer is mandatory at high speed it is still used in uphill and even steep terrain by strong skiers. Just like in the V1 a good way to accomplish both good weight transfer and maintain momentum is to keep the feet in a wide position (never letting the feet come close together). When this is the case the skier's body will stay inside the feet and they will never be directly on top of the ski. Weight shift will still be effective however so long as the hips are shifting from side to side and pushing against one ski and then the other.

On faster terrain the skier should seek complete weight transfer. At the start position of the technique the skier will be completely over the poling side ski. While many skiers begin transferring their weight prior to initiating the skate/poling motion, the way to maximize power is to begin the initiation of the poling motion and skate with the weight directly over one ski. This will feel like the weight is dropping directly down on the ski and poles. This drop initiates the immediate transfer of weight to the other ski.

On the non-poling side the knee must continue to drive forward until the skier has completed the skating push. A variation on this technique allows a slight countermovement rise on the non-poling



ski and then a quick drop down into the skate push position. This variation is used at cruising speeds and is very rhythmical and relaxing.

## **Training/Racing**

Technique is the tool you use to apply your fitness to the sport. Technique is the screwdriver, fitness is what you use to turn the screwdriver, ski racing is the job you are trying to accomplish. With technique training you are simply trying to develop a good tool to help you get the job done. But fitness comes first. If you are fit enough you can drive the screw into the board with no screwdriver at all. There are many examples of skiers with inefficient technique winning even World Cup ski races – in other words skiers who can drive the screw with no screwdriver (crude technique) – they do this with fitness. All technique work must be done in conjunction with and as an addition to preparation aimed at aerobic, anaerobic or strength oriented training. Do not mistake having a nice tool chest with being a good carpenter.

## **Drills**

- Speed Skater
- The Train

## **Conclusion**

Proper body position enables proper timing—both of which enable effective, efficient application of power.



## Ford Sayre BKL Practice Plans

The practice plans that follow are adapted from Håkon Korsvold's 3rd & 4th grade dryland practice plans (Fall 2010), and are easily modified to suit younger and old age groups. They seamlessly incorporate many of the critical domains for all BKL age skiers as outlined in the Ford Sayre 'Markers of Competency' matrix!

Some of the strengths of these plans are:

- they are ACTIVE – there is very little down time for the kids (not much adult-talking time!)
- they are FUN ('deliberate play')
- the progression through the fall includes increasing ski-specificity
- every practice includes a variety of activities
- they utilize many different areas of the Oak Hill venue
- they enable faster/more fit kids to do more while keeping a diverse group together
- they incorporate fitness/endurance, speed, explosiveness, teamwork, strength, competition, agility, coordination, etc!





**WEEK 1**

week before Thanksgiving

**TUESDAY**

**Theme: Relays**

*Format: 3 randomly-assigned groups of ~15 kids each; ≥ 2 coaches with each group*

|   |              |
|---|--------------|
| <p><b>I. Sign-in &amp; Warm-Up</b></p> <ul style="list-style-type: none"> <li>• Lead coach runs sign-in: each skier signs in, then joins tag/game</li> <li>• Another coach leads tag/game; other coaches help</li> </ul>  | <p>10min</p> |
| <p><b>II. Group/Coach Assignment</b></p> <ul style="list-style-type: none"> <li>• Lead coach reads names per group; kids move to coaches/groups</li> </ul>  | <p>5min</p>  |
| <p><b>III. Skiing Activities</b> (in groups)</p> <ul style="list-style-type: none"> <li>• Goal is to remind the skiers that we are looking forward to winter, and to get some lower body strength and explosiveness.</li> <li>• Suggestions:             <ul style="list-style-type: none"> <li>– Jumps (touch ground and hands above head when jump off the ground) - 3 series w/ 6 jumps in each series</li> <li>– Jumps from side to side where feet meet - 2 series of 20 jumps</li> <li>– As above but two jumps on landing foot.</li> <li>– Tuck practice: Get into position and hold for 30 secs, jump up and land in tuck. Repeat 6 times, 2 series.</li> </ul> </li> </ul>   | <p>10min</p> |
| <p><b>IV. Relays</b> (in groups)</p> <ul style="list-style-type: none"> <li>• Goal is to work on aerobic endurance and keep heart beating fast and lungs working... 2-3 kids per team (otherwise too long break).</li> <li>• Suggestions:             <ul style="list-style-type: none"> <li>– Loop relay: Suggest two bases 600 feet apart, where first and third leg stand at first base, and second leg at the second base. The relay can go however many loops there is time for.</li> <li>– Relay with rubber bands as props: Two skiers tied together by a rubber band (start w/ hands, easiest, then progress to feet). Run out and back and then let the next leg run. Repeat.</li> <li>– Relay with loops around bucket before can turn back (can do 3-5-10 loops - start w/ fewer and see how it goes). Repeat.</li> <li>– Card Deck Relay: Spread out a deck or two of cards face down. Line up teams of 3 or 4 athletes 20 to 50 yds away. Each team gets a card suit to collect. If there are more than 4 teams, some teams collect the same suits. Each person is allowed to draw only once per leg. If they draw "their" card, they take it back to their team. If not, they put it back, face down. Each skier runs several legs, until the pile of cards is maybe 1/3 of its original size. Variant: give each person two chances on each leg. If they don't draw "their" card at the first attempt, they run a short penalty loop, then draw one more time. Team with most cards wins.</li> </ul> </li> </ul> | <p>20min</p> |
| <p><b>V. Gathering/Game/Cool Down</b> (all together)</p> <ul style="list-style-type: none"> <li>• Meet at 415 sharp</li> <li>• Game where the goal is to steal tails from each other. The winner is the one with the most tails. Play 3 times, 2-4 min each time.</li> </ul>  | <p>10min</p> |
| <p><b>VI. Sign Out</b></p> <ul style="list-style-type: none"> <li>• One coach from each of the 3 groups signs out skiers in that group</li> </ul>   | <p>5min</p>  |

**WEEK 1**

week before Thanksgiving

**THURSDAY****Theme: Hills (near stadium)***Format: keep Tuesday's 3 groups of ~15 kids each with same coaches*

|   |       |
|---|-------|
| <b>I. Sign-in</b> <ul style="list-style-type: none"> <li>• One coach runs sign-in for each group</li> </ul>   | 5min  |
| <b>II. Warm Up</b> <ul style="list-style-type: none"> <li>• Suggest a slow run w/ "follow the leader" activities, e.g. lift arms, kick high, jump sideways, rotate arms etc (whatever you can think of)</li> </ul>  | 10min |
| <b>III. Game</b> (in groups) <ul style="list-style-type: none"> <li>• Each group plays a game of its own choosing</li> <li>• Suggestions: <ul style="list-style-type: none"> <li>- tag</li> <li>- "Snip-Snap" (stand w/ backs against one another in pairs. One is Snip the other Snap. Coach yells either Snip or Snap and the person w/ the name called out must turn around and catch the other person)</li> <li>- other running games you can think of</li> </ul> </li> </ul>   | 10min |
| <b>IV. Hill Intervals</b> (in groups) <ul style="list-style-type: none"> <li>• Prepare the kids for getting more exhausted and discuss how one feels when one is working hard.</li> <li>• Suggestions: <ul style="list-style-type: none"> <li>- ~10 min. Start w/ hill bounding - demonstrate - then practice 3-4 times up about 60 feet. Then encourage the kids to do it as "best they can", 100%, 3-4 times.</li> <li>- ~10 min. Next, do running intervals uphill (and down again), preferably as games or relays to make it more fun. Can use a ball to tag w/ or have one person run up and put it down or in a bucket and the next person go get it. Can use cones to make the downhill part a 'slalom course.'</li> <li>- If time, finish w/ loop running relays on flat ground.</li> </ul> </li> </ul> | 20min |
| <b>V. Games/Cool Down/Stretch</b> (all together) <ul style="list-style-type: none"> <li>• Meet at 415 sharp</li> <li>• One coach plan/lead a game that brings all 3 groups back together</li> </ul>   | 10min |
| <b>VI. Sign Out</b> <ul style="list-style-type: none"> <li>• One coach from each of the 3 groups signs out skiers in that group</li> </ul>  | 5min  |

**WEEK 2**

Thanksgiving week

**TUESDAY****Theme: Practice Race***Format: keep last week's 3 groups of ~15 kids each with same coaches*

|   |       |
|---|-------|
| <b>I. Sign-in</b><br>• One coach runs sign-in for each group, hands out 'bibs'  | 5min  |
| <b>II. Warm Up</b> (in groups)<br>• Jog around the course in groups (description below)<br>• Tag, relays, etc to get warm   | 20min |
| <b>III. Practice Race</b><br>• Start is 400 sharp<br>• Wave start: 5 skiers per wave, 1 wave every minute (waves mix skiers from all 3 groups)<br>• Get skiers cheering for each other in the start, finish, around course<br>• Two coaches/parents at start, two at finish to start/record times | 15min |
| <b>IV. Debrief</b> (in groups)<br>• Back in groups to debrief: how did it feel to run like that? It is ok if your legs hurt, you were breathing hard, etc...  | 5min  |
| <b>V. Games/Cool Down/Stretch</b> (all together)<br>• One coach plan/lead a game that brings all 3 groups back together   | 10min |
| <b>VI. Sign Out</b><br>• One coach from each of the 3 groups signs out skiers in that group   | 5min  |

**Notes:**

- Håkon made start lists (mixing groups in each wave) and 'bibs' (just a number on regular paper) ahead of time, and brought safety pins for the 'bibs.' He also had some kind of list that the starters and finish timers could record times on.
- Håkon had copies of the start lists (number and name) available for coaches and parents, so that everyone could cheer for every skier by name! I think this was a BIG part of the success of the event.
- The practice race was timed, but skiers were only given their times if they asked. The plan was to run another test race close to Christmas vacation, and show each skier her/his improvement (but it snowed, so we skied instead of the 2nd dryland test race!).
- Coaches emphasized that the times were for comparison with your own time in the second practice race (before December vacation), not for comparison with other skiers' times.
- Håkon had planned cider/snacks afterwards, but someone got a bug in his ear about allergies. My understanding is that the schools deem that by 3rd grade, kids are responsible enough to forego food they don't trust – and by the winter test race he did do cocoa/snacks and it went just fine. So I think this could be a nice addition to the fall test races if there are parents willing to help with this!

*(course description and map next page)*

**Course (approximately 0.7k):**

- Start on trail below stadium, just below usual meeting spot
- Run trail into stadium access road, then across stadium and R onto the last part of the downhill
- “Backwards” up the last section of the race course’s stadium approach
- Just before entering the woods, R down the steep (ungroomed) play hill
- Run length of stadium
- Finish at timing shed



**WEEK 3**

week after Thanksgiving

**TUESDAY**

**Theme: Stations (Stadium Area)**

*Format: 3 NEW groups of ~15 kids each*

|  |  |
|--|--|
| <p><b>I. Sign-in</b></p> <ul style="list-style-type: none"> <li>• Several coaches help skiers find new groups</li> <li>• One coach runs sign-in for each group</li> </ul>  | <p>5min</p>                            |
| <p><b>II. Warm Up</b> (in groups)</p> <ul style="list-style-type: none"> <li>• Suggest a loop from stadium</li> <li>• Slow run w/ "follow the leader" activities, e.g. lift arms, kick high, jump sideways, rotate arms etc (whatever you can think of)</li> <li>• Try to get all kids to jog (keep moving) for whole warm-up</li> </ul>   | <p>10min</p>                           |
| <p><b>III. Stations</b> (in groups)</p> <p>Each group rotates through all stations - one (two if enough) coach leads each station, other coaches rotate with groups</p> <ul style="list-style-type: none"> <li>• Individual exercises, 100-150' each (short enough to go FAST)             <ul style="list-style-type: none"> <li>- run as fast as you can</li> <li>- run as low as you can</li> <li>- run getting knees high</li> <li>- single-leg hop</li> <li>- double-leg jump</li> <li>- run backwards</li> <li>- run sideways/grapevine/karaoke</li> </ul> </li> <li>• Bounding with poles             <ul style="list-style-type: none"> <li>- short hill out of stadium</li> <li>- make it fun coming back down</li> </ul> </li> <li>• Card Deck Relay or other Relay Races</li> </ul> | <p>30min<br/>(10min each activity)</p> |
| <p><b>IV. Tug'o'war</b> (all together)</p> <ul style="list-style-type: none"> <li>• All 3 groups together</li> </ul>   | <p>5min</p>                            |
| <p><b>V. Stretch</b> (all together)</p> <ul style="list-style-type: none"> <li>• Stretch with all 3 groups together</li> </ul>   | <p>5min</p>                            |
| <p><b>VI. Sign Out</b></p> <ul style="list-style-type: none"> <li>• One coach from each of the 3 groups signs out skiers in that group</li> </ul>  | <p>5min</p>                            |

**WEEK 3**

week after Thanksgiving

**THURSDAY****Theme: Hills (trip up/down Oak Hill)***Format: keep Tuesday's 3 groups of ~15 kids each with same coaches*

|  |       |
|--|-------|
| <b>I. Sign-in</b> <ul style="list-style-type: none"> <li>• One coach runs sign-in for each group</li> </ul>  | 5min  |
| <b>II. Warm Up</b> (in groups) <ul style="list-style-type: none"> <li>• Start up Oak Hill - walking/ski walking - to get warmed up before working hard</li> </ul>  | 10min |
| <b>III. Hills/Intervals</b> (in groups) <ul style="list-style-type: none"> <li>• Prepare the kids for getting more exhausted and discuss how one feels when one is working hard.</li> <li>• Suggestions: <ul style="list-style-type: none"> <li>- make it a progressive trip to the top of Oak Hill</li> <li>- ~10 min. Start w/ hill bounding - demonstrate - then practice 3-4 times up about 60 feet. Then encourage the kids to do it as "best they can", 100%, 3-4 times.</li> <li>- ~10 min. Next, do running intervals uphill. Run uphill for 60-90 seconds. End each interval with some strength: eg five push-ups or ten sit-ups. Then walk for 60-90 seconds. Repeat 4-5 times.</li> </ul> </li> </ul> | 10min |
| <b>IV. Human Slalom</b> (in groups or all together) <ul style="list-style-type: none"> <li>• coming down an alpine trail: kids spread out as 'gates' - last kid runs the gates, and becomes downhill-most gate; next kid runs the gates, becomes new downhill-most gate; etc to bottom. Variation: have each kid say the name of every 'gate' on the way down.</li> </ul>  | 20min |
| <b>V. Games/Cool Down/Stretch</b> (all together) <ul style="list-style-type: none"> <li>• Meet at 415 sharp</li> <li>• One coach plan/lead a game that brings all 3 groups back together</li> </ul>  | 10min |
| <b>VI. Sign Out</b> <ul style="list-style-type: none"> <li>• One coach from each of the 3 groups signs out skiers in that group</li> </ul>   | 5min  |

**WEEK 4**

first full week of December

**TUESDAY**

**Theme: Introduce Poles**

*Format: same groups as last week*

|   |              |
|---|--------------|
| <p><b>I. Sign-in</b></p> <ul style="list-style-type: none"> <li>• One coach runs sign-in for each group</li> </ul>  | <p>5min</p>  |
| <p><b>II. Warm Up</b> (in groups)</p> <ul style="list-style-type: none"> <li>• Suggest a slow run w/ "follow the leader" activities, e.g. lift arms, kick high, jump sideways, rotate arms etc (whatever you can think of)</li> <li>• Try to get all kids to jog (keep moving) for ~1/2 mile</li> <li>• Use warm-up to get to good place for ski walking</li> <li>• Add some jumps and tucks for lower body strength</li> </ul>     | <p>10min</p> |
| <p><b>III. Ski Walking &amp; Running Relays</b> (in groups)</p> <ul style="list-style-type: none"> <li>• Find a hill that is open/wide enough for skiers to go up one side, and down the other – so that everyone moves continuously</li> <li>• Uphill: ski walking – coaches demonstrate and lead</li> <li>• Downhill: cones for slalom? obstacle course?</li> <li>• Finish with short relays on flat ground (no poles)</li> </ul> | <p>20min</p> |
| <p><b>IV. Return to Stadium</b> (in groups)</p> <ul style="list-style-type: none"> <li>• Easy cool down walk/jog back to stadium area</li> </ul>  | <p>10min</p> |
| <p><b>V. Games/Cool Down/Stretch</b> (all together)</p> <ul style="list-style-type: none"> <li>• Meet at 415 sharp</li> <li>• One coach plan/lead a game that brings all 3 groups back together</li> </ul>  | <p>10min</p> |
| <p><b>VI. Sign Out</b></p> <ul style="list-style-type: none"> <li>• One coach from each of the 3 groups signs out skiers in that group</li> </ul>   | <p>5min</p>  |

**WEEK 4**

first full week of December

**THURSDAY**

**Theme: Stations (around Area 5)**

*Format: 3 NEW groups of ~15 kids each*

|   |                                       |
|---|---------------------------------------|
| <p><b>I. Sign-in</b></p> <ul style="list-style-type: none"> <li>• Several coaches help skiers find new groups</li> <li>• One coach runs sign-in for each group</li> </ul>   | <p>5min</p>                           |
| <p><b>II. Warm Up</b> (in groups)</p> <ul style="list-style-type: none"> <li>• Slow jog out to Area 5</li> <li>• Leave stadium by different routes to make it easier for coaches to keep track of their own groups</li> <li>• Try to keep all kids jogging (keep moving) except steep hill away from tennis courts</li> <li>• Add push-ups, sit-ups during warm-up for upper body strength</li> </ul>   | <p>10min</p>                          |
| <p><b>III. Stations</b> (in groups)</p> <p>Each group rotates through all stations – one (two if enough) coach leads each station, other coaches rotate with groups</p> <ul style="list-style-type: none"> <li>• Pendulum relay             <ul style="list-style-type: none"> <li>– coach calls something different for each leg – eg run normal, run backwards, run sideways, skip, butt kicks, etc</li> </ul> </li> <li>• Bounding with poles             <ul style="list-style-type: none"> <li>– make a loop using trail out of Area 5 to go up, come down hill in Kendal field back to bottom and bound up trail again</li> </ul> </li> <li>• Wheel barrow relay (5min) and Tag or Snip/Snapp (5min)</li> </ul> | <p>30min<br/>(10min each station)</p> |
| <p><b>IV. Return to Stadium</b> (all together)</p> <ul style="list-style-type: none"> <li>• All 3 groups together, easy cool down walk/jog back to stadium</li> </ul>   | <p>10min</p>                          |
| <p><b>V. Stretch</b> (all together)</p> <ul style="list-style-type: none"> <li>• If time, stretch with all 3 groups together</li> </ul>   |                                       |
| <p><b>VI. Sign Out</b></p> <ul style="list-style-type: none"> <li>• One coach from each of the 3 groups signs out skiers in that group</li> </ul>   | <p>5min</p>                           |



|               |                              |
|---------------|------------------------------|
| <b>WEEK 5</b> | second full week of December |
|---------------|------------------------------|

**TUESDAY**

**Theme: Trip Around the Pond**

*Format: TWO NEW groups - one goes in each direction around pond*

|   |       |
|---|-------|
| <b>I. Sign-in</b> <ul style="list-style-type: none"> <li>• Several coaches help skiers find new groups</li> <li>• One coach runs sign-in for each group</li> </ul>  | 5min  |
| <b>II. Warm Up</b> (in groups) <ul style="list-style-type: none"> <li>• Start trip around pond with slow run w/ "follow the leader" activities, e.g. lift arms, kick high, jump sideways, rotate arms etc (whatever you can think of)</li> <li>• One group starts by going down to pond, out Printing Press onto Pond Loop</li> <li>• One group starts by going up hill by jumps and 'backwards' into War Zone onto Pond Loop</li> </ul>                      | 10min |
| <b>III. Mixed Movement Around Pond</b> (in groups) <ul style="list-style-type: none"> <li>• Bounding with poles on steep hills</li> <li>• Balancing on logs in woods</li> <li>• Upper body strength on props (monkey bars, pull-up bars, etc)</li> <li>• Intervals (run fast for 1:30 then jog/walk for 1:30 x 3)</li> <li>• Tug'o'war wherever the two groups meet/pass each other</li> <li>• use or skip Kendal Field according to time/progress</li> </ul> | 20min |
| <b>IV. Capture the Flag</b> (all together) <ul style="list-style-type: none"> <li>• Stadium - one group against the other</li> </ul>  | 15min |
| <b>V. Cool Down/Stretch</b> (all together) <ul style="list-style-type: none"> <li>• Stretch with all 3 groups together</li> </ul>   | 5min  |
| <b>VI. Sign Out</b> <ul style="list-style-type: none"> <li>• One coach from each of the 3 groups signs out skiers in that group</li> </ul>  | 5min  |

**WEEK 5**

second full week of December

**THURSDAY**

**Theme: Stations (around Area 1)**

*Format: same groups as last Thursday*

|   |  |
|---|--|
| <p><b>I. Sign-in</b></p> <ul style="list-style-type: none"> <li>• One coach runs sign-in for each group</li> </ul>  | <p>5min</p>                            |
| <p><b>II. Warm Up</b> (in groups)</p> <ul style="list-style-type: none"> <li>• Suggest a loop from stadium that ends up at Area 1 (eg war zone backwards)</li> <li>• Slow run w/ "follow the leader" activities, e.g. lift arms, kick high, jump sideways, rotate arms etc (whatever you can think of)</li> <li>• Try to get all kids to jog (keep moving) for whole warm-up</li> </ul>   | <p>10min</p>                           |
| <p><b>III. Stations</b> (in groups)</p> <p>Each group rotates through all stations – one (two if enough) coach leads each station, other coaches rotate with groups</p> <ul style="list-style-type: none"> <li>• Pendulum relay using bands             <ul style="list-style-type: none"> <li>– two skiers, arms banded together</li> <li>– two skiers, legs banded together</li> <li>– individually, ankles banded together (jumping)</li> </ul> </li> <li>• Bounding with poles             <ul style="list-style-type: none"> <li>– lower part of hill back to stadium (below jumps)</li> <li>– make it fun coming back down – eg cone slalom</li> </ul> </li> <li>• Balancing on logs in woods and/or upper body (eg push-ups, dips, sit-ups using picnic tables in Area 1 shelter)</li> </ul> | <p>30min<br/>(10min each activity)</p> |
| <p><b>IV. Ski Walk</b> (all together)</p> <ul style="list-style-type: none"> <li>• Ski walk up hill to stadium</li> </ul>   | <p>5min</p>                            |
| <p><b>V. Cool Down/Stretch</b> (all together)</p> <ul style="list-style-type: none"> <li>• Stretch with all 3 groups together</li> </ul>  | <p>5min</p>                            |
| <p><b>VI. Sign Out</b></p> <ul style="list-style-type: none"> <li>• One coach from each of the 3 groups signs out skiers in that group</li> </ul>   | <p>5min</p>                            |

|               |                            |
|---------------|----------------------------|
| <b>WEEK 6</b> | start of December vacation |
|---------------|----------------------------|

**TUESDAY**

**Theme: Practice Race**

*Format: same two groups as last Thursday*

|  |       |
|--|-------|
| <b>I. Sign-in</b><br><ul style="list-style-type: none"> <li>• One coach runs sign-in for each group</li> </ul>   | 5min  |
| <b>II. Warm Up</b> (in groups)<br><ul style="list-style-type: none"> <li>• Jog test race course</li> <li>• Speed – short (50’) bursts</li> <li>• Tag or Card Deck Relay</li> </ul>   | 20min |
| <b>III. Practice Race</b><br><ul style="list-style-type: none"> <li>• Start is 400 sharp</li> <li>• Wave start: 5 skiers per wave, 1 wave every minute</li> <li>• Get skiers cheering for each other in the start, finish, around course</li> <li>• Two coaches/parents at start, two at finish to start/record times</li> </ul> | 15min |
| <b>IV. Debrief</b> (in groups)<br><ul style="list-style-type: none"> <li>• Back in groups to debrief: how did it feel to run like that? It is ok if your legs hurt, you were breathing hard, etc...</li> </ul>   | 5min  |
| <b>V. Games/Cool Down/Stretch</b> (all together)<br><ul style="list-style-type: none"> <li>• One coach plan/lead a game that brings all skiers back together</li> </ul>  | 10min |
| <b>VI. Sign Out</b><br><ul style="list-style-type: none"> <li>• One coach from each of the 3 groups signs out skiers in that group</li> </ul>  | 5min  |

**Notes:**

- Make start lists, ‘bibs’ (just a number on regular paper) ahead of time; bring safety pins for the ‘bibs.’ Make list that starters and finish timers can record times on.
- Have copies of the start lists (number and name) available for coaches and parents, so that everyone can cheer for every skier by name!
- I think Håkon had planned to NOT announce the times to the skiers. I think he was going to send an email to parents with times from both ‘practice races’ so parents could see the times and decide whether to talk about the time with the child, or talk about improvement from one test race to the other, or just talk about it being a fun afternoon!
- Hot cocoa/snacks afterwards?

**Course (approximately 0.7k):**

- Start on trail below stadium, just below usual meeting spot
- Run trail into stadium access road, then across stadium and R onto the last part of the downhill
- “Backwards” up the last section of the race course’s stadium approach
- Just before entering the woods, R down the steep (ungroomed) play hill
- Run length of stadium
- Finish at timing shed