

November 2011

Eastern Mass Bill Koch Coaches' Manual 2011-2012¹

This manual describes coach responsibilities and practice organization that is specific to EMBK and covers some aspects of technique instruction specific to the EMBK program. This manual supplements, not replaces, primary source material on technique and communication provided by NENSA and USSA, which are linked on the "For Coaches" page on the EMBK Web site.

Coaching mission statement

To teach young skiers the fundamentals of modern cross country skiing in a fun environment so that cross-country skiing becomes a lifelong source of pleasure and exercise, so that each skier can achieve his or her personal and family skiing goals, and so that each child can achieve her or her potential in competitive skiing if they so choose.

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¹*Acknowledgments.* This coaches' manual draws heavily on written materials from NENSA, USSA, and Ford Sayre, and on helpful communications with Scottie Eliassen (Ford Sayre) and Ellen Toll (Nordic Ski Association of Anchorage).

1. Coach Responsibilities

EMBK is organized into “regions”, each of which has “countries” with a country head coach, 2-4 assistant coaches, and approximately 20-25 skiers. The three regions are:

- **North America:** Novices. Countries: Team USA (age 7) and Canada (novices ages 8-13)
- **Western Europe:** Recreational skiers with more relaxed attendance expectations. Countries: Switzerland, Austria, Germany
- **Scandinavia:** More competitive orientation, with more significant attendance expectations (3-4 times on XC skis per week, depending on age; play on skis in the back yard counts). Countries: Sweden, Finland, Norway

Within constraints of practice schedules and centrally determined practice technique, the countries operate autonomously during the ski season. Think of the “country” as the elementary school classroom – there is a lot of autonomy (and responsibility) at the country level, within the overall coaching mission and goals of the program.

1.1. Region head coach

The region head coach provides support to his/her country head coaches and coordinates with the club head coach when coach staffing is imbalanced. The region head coach does preliminary assignment of skiers within his/her region and manages skier switches across countries within the region. The region head coach is also responsible for coordinating skier moves between regions.

1.2. Country head coach

The head country coach is the primary point of contact for the skiers, parents, and coaches in that country. The head country coach is responsible for ensuring that each of the country’s skiers have a fun and positive experience and make good progress on skiing technique.

Head country coach responsibilities

- Have NENSA Level 1 or USSA L100 certification
- Organize practices, including:
 - developing and implementing daily practice plan
 - ensuring and coordinating coach coverage
 - breaking skiers into smaller groups on a practice-by-practice basis
 - have updated list of country members at every practice (download before practice)
- Communication with parents and skiers
 - You are the primary point of contact/source of information for the skiers and parents in your country.
 - Send introductory and mid-season emails to country parents (see the box).
 - Be available for parent questions and concerns
 - Recruit country parent(s) to help with any aspect of country management you want, including getting kids outside at the beginning of practice, having an experienced parent

The Country Head Coach Introductory Email

- Warm welcome
- Head and assistant coach names and contact info; times that are best for you for parent Q&A (e.g. before or after practice)
- Goals and expectations
 - Your goals for your skiers*
 - Your expectations about attendance, skiing on non-practice days, etc. These will differ significantly by country.
- Practical details
 - Practice information for your country (Sat only, Sat/Wed, or Sat/Wed/Th; times and practice routine; meeting spot; importance of showing up on time; always check Web site/announcements page before coming to practice for technique)
 - Age-specific practical advice (clothing, arrive early on classic days, are parents needed to help get skiers organized, etc.)
 - Any special calendar items for your country (e.g. BK Festival as appropriate; any anticipated outings), logistics, whom to contact, etc. *NOTE:* point parents to the Web site for information on clothing, simple waxing, etc.

*Please emphasize the two club-wide goals of having fun on snow, which is key to cross country skiing becoming a life-long sport, and improving skiing technique (becoming better skiers). Beyond this, different countries will have different, more specific goals. Head country coaches are encouraged to discuss his or her country goals with the head coach.

available during practice for parent Q&A, organizing country carpools to non-Weston events, providing post-practice hot chocolate as a treat for your country, “buddying” for new parents, etc. If you think a country “manager” would help you do your job, recruit one of your (non-coach) parents.

- Communication with EMBK head coach and/or technique coach
 - Attend pre-season head country coach meeting
 - Know when to ask for help! Although you are the “boss” of your country there is also a club support system in place behind you if you need it. If you are experiencing problems with some skiers or assistant coaches, if you feel uncertain about technique instruction, PLEASE reach out to the head coach. If something needs to be fixed, let someone know!
- Manage country boundaries
 - move skiers to/from other countries as appropriate
 - Please make sure changes are centrally recorded!

1.3. Assistant coaches

Assistant coaches are vital to the success of our program. The job is designed to be a way for parents to have fun and to contribute while their kids are off skiing during practice. Time demands outside of club practices are limited to a single preseason coaching clinic. The most important attributes for assistant country coaches are enthusiasm, enjoying being outside in the winter with kids, and a desire to learn more about skiing and coaching. Having some skiing experience is important but you don't need much! We will teach you what you need to know about modern technique and our instructional program. We try to place assistant country coaches according to their experience and interests.

Assistant country coach responsibilities

- Complete NENSA Level 1 Module 1 (Technique & Physiology). This session is provided by the club in November and will be led by NENSA staff and/or NENSA certified instructors. NENSA offers this clinic at other times and locations as well.
- Practice responsibilities:
 - Pitch in proactively at practice as needed
 - Lead/instruct subgroups as determined by head country coach
 - Help with classic waxing – but don't get stuck in the wax tent during practice!
- The more practices you can make, the better, but everybody has professional and/or personal scheduling conflicts and our structure is designed to accommodate those conflicts. Let the head country coach know your daily availability for the season.

2. Running Practices

2.1. Practice logistics

- Before practice
 - Please arrive 10 minutes early on skate days and 15 minutes early on classic days, so you can help your skiers get organized.
 - Please wear your country's pinnies.
 - Please help your skiers with waxing on classic days.
 - Your primary responsibility is to the skiers in your country – try to get them waxed and out on snow as soon as possible. It's nice for you to help skiers from other countries but that is their coaches' job – your job is to be out on snow with your skiers.
 - Classic waxing should be a joint learning process with skiers and parents: teach them how to put on their own classic wax. The extent to which skiers and parents can help will depend on the difficulty of the wax and the skier's age. Waxing is a teaching opportunity - the goal is to give the parents and skiers the confidence that they can do it themselves.
 - Please arrive even earlier on klister days (which are rare). Coaches and the trained wax crew typically need to apply klister to avoid a confidence setback for our less experienced skiers and parents.

- Start of practice
 - Establish a meeting place and time at the first practice and stick to it religiously so that the kids have clear expectations about where to be when. For example your schedule might be:
 - 9:00am meet, get organized, adjust equipment, etc
 - 9:05am go out for a warmup activity
 - 9:10am circle back to get any stragglers (either full group or just a coach).
 - (Head coach) Tell the skiers and parents in your introductory email your schedule so that expectations are clear, and so parents know that if they miss the “circle back” time then it is their skier’s responsibility to find you.
 - Especially for younger ages it is a good idea to have a designated non-coach parent volunteer who can shepherd the skiers and help with start-of-practice logistics.

- After practice
 - Please stay a few minutes after practice for parent Q&A. Make sure parents know where to find you after practice.

2.2. Daily practice

A normal practice consists of a warmup activity, a technique instruction component including drills or progressions, and a game. It is important to stick with this structure so that skiers know what to expect, but it is also important to add unexpected variations and activities for variety. In a well-planned and successful practice, 100% of the practice is devoted to aptitude development and skill acquisition, including appropriate rest (see Section 3.1).

Be ready to adjust the plan based on conditions, and don’t be too rigid. If something isn’t working and the kids are dragging or bored, change the plan. If you arrive after a fresh snowfall and WST has the entire system groomed, consider abandoning your practice plan and embarking on a Tour de Weston (especially fun at night – no headlamp needed if there is some moonlight or light reflection from clouds!). Remember, playing on skis involving balance and movement is good!

Generally we improvise on which countries practice where. Priority for the gentlest terrain and proximity to the clubhouse is given to the youngest/least experienced skiers.

Practices should minimize activities aimed at fitness for fitness’ sake (no “laps around the field”!). In a properly structured practice the skiers will get plenty of exercise because they are moving the vast majority of the time.

Finally, keep in mind that whatever you do, the kids should be safe and having fun. We want the kids to continue with the sport as a lifelong passion and having fun is the key to making this happen.

The daily practice plan. The country head coach is responsible for the daily practice plan and for making sure assistant coaches know the plan. Appendix A contains a suggested template for daily practice plans within an annual framework.

3. Coaching Technique: Resources and Tips

Teaching ski technique is the club's core activity and the coach's main job. Because our goals are long-term, we have time to focus on mastering fundamentals. We don't have upcoming games or playoffs or associated performance goals or pressures. Getting the fundamentals right lays the foundation for our skiers' success and enjoyment of the sport in high school and beyond.

This section contains some general observations on technique, details are covered in the EMBK/CSU technique progressions and videos (see the For Coaches page on the club Web site) and the NENSA Level 1 coaching clinics.

3.1 Technique = aptitudes + skills

Skiing technique consists of combining aptitudes and specific skills to achieve efficient forward motion on snow. Here, "aptitudes" refer to basic athletic abilities: balance, coordination, agility, flexibility, feel for the snow, etc. "Skills" refer to specific learned movements or sequences of movements, for example the positions and movements involved with high-hands double poling. Technique combines aptitudes and skills. For example the V2-alternate combines the aptitudes of balance (gliding on one ski in a neutral relaxed position) and coordination (of upper and lower body) with specific skills (high hands core crunch plus lateral leg push-off). When aptitudes and skills are properly combined, the result is good technique: skiing that is simultaneously fluid, graceful, relaxed, powerful, and fast.

The concept of "technique = aptitudes + skills" can be very useful in structuring practices and in assessing individual skiers. A well-designed practice should have 100% of the time be devoted to developing aptitudes and skills, including brief rest as necessary. When you think about technique as comprised of these two components you will realize that they can be developed in complementary ways.

Teaching skills. We teach skills through the EMBK progressions, which are updated annually and are posted on the "For Coaches" page on the club Web site.

- We have found that using the same progressions and the same terminology makes it much easier for skiers to learn from different coaches and for coaches to work with multiple skiers because we all "speak the same language." Speaking a "different language" that draws on ideas outside the progressions tends to confuse and frustrate most young (and old!) skiers.
- Skills are best taught by "learning by doing," by breaking down complex synchronized motions into components which are then perfected and learned by repetition (drills). Our model is group introduction to the drill, followed by "doing" with one-on-one coach feedback and hands-on work by the coach.
- Once the basics are mastered, skills can also be practiced in competitive contexts, for example no-poles skate relays, or classic relays in which you only do double pole (or DP kick, or no-poles striding, etc.). For more advanced skiers neuromuscular coordination can be pushed by "overspeed" drills such as races in which skiers are required to classic stride downhill, or to V1 down a gentle hill, or to V2 down a steeper hill.

Developing aptitudes. Aptitudes cannot be taught but can be fostered and developed in the right environment by appropriate activities. Ski-specific aptitude development should be integrated into every practice. Basically aptitude development is guided play. Here are examples:

- Replace the usual warmup ski with playing on a big snow mound, climbing up and tucking down (no poles), a brief game of tag, chicken dance or hokey pokey on skis, etc.
- During a V1 practice session, have your skiers ski do the downhill return on one ski, or ski down outside the groomed area.
- EMBK games (keep moving at low-moderate intensity; or quick bursts and rest).
- Taking ski jumps (no poles; coaches make sure the jump is safe)
- “Bombing” a hill
- While waiting for others, who can do a 180° jump turn? Who can do a 180° “ski-over-ski” turn? Can you do it while moving?
- When about to begin a drill and everyone is standing facing you, do something goofy:
 - a group ski-over-ski lateral walk, faster and faster
 - the chicken dance modified for hopping around (spinning in place); squawk loudly
- Tuck in tracks backwards down a gentle hill (no poles) (this is hard!)
- While “waiting” have everyone double pole back and forth on one ski; then do it with one ski up in the air (foot behind you at waist position or higher with ski up).

Once you get the hang of it, aptitude development can be introduced impromptu.

3.2 Developing a “coach’s eye” and individual feedback

A coach’s eye. The greatest value of a coach can come through individualized one-on-one work. For this you need to develop a “coach’s eye.” Although a coach’s eye is honed over years of coaching, it can be trained using a simple checklist. The basic idea is that good skiing technique starts at the core with appropriate body position. This checklist works from the hips down, then up:

1. **Hips.** *Lateral:* Are the hips moving laterally over the glide ski (both skate and classic)? If the skier cannot maintain a single-ski glide it is probably because his/her hips are not fully over the glide ski. *Fore and aft:* Are the hips forward with the pelvis in the tilted forward position, or are they in the outhouse position? [*Advanced:* in classic striding are hips opening up/rotating during the stride? This is the only exception to having hips square down the track.]
2. **Legs and feet.** Check the timing and direction of the kick (lateral soccer kick in skate, quick pop on flat foot in classic; kick should be from center of foot in classic, from midfoot to heel in skate, not “on your toes”). Are legs relaxed after kick (“kick and release” or “kick and float”)?
3. **Core.** The skier’s torso and shoulders should be squarely over the hips, not tilted to the side; “vertical zipper;” shoulders should be square to the track (facing down the track).
4. **Head.** Where is the skier looking and when? The head and neck should be moving in concert with the core crunch in DP and skate technique; in classic, eyes should be 20 feet down the trail.
5. **Arms and hands.** Do the arms start in the right place? Hands high enough? Shoulder width apart? 90° elbow bend? Arm motion should be straight forward/backward – any lateral motion is wasted energy. Arms should be a connected extension of core (power transmission from core) not a separate disconnected motion; core crunch should be transmitted through arms not absorbed by collapsing on arms. Does the skier release the poles at the end of the poling motion?

For classic technique, this checklist is augmented with how effective the skier's kick is going uphill. If the wax is adequate then slipping is usually an indication of inadequate weight transfer, weight back (both hips problem), or, less frequently, lack of setting the wax (no kick/knee pop).

Go through the full checklist while watching a skier. Often you will detect multiple problems. As a rule of thumb it is usually best to address them in the order of this list (from the hips out). Note however that sometimes problems in the extremities induce problems in the core, in which case the problems in the extremities should be addressed. Here are some examples:

- Hands too far ahead of body in DP and skate strides – reaching forward. This places hips back, moving hands in pulls hips forward. This is a hands/arm problem not (necessarily) a hips problem. Try a tighter starting hand position (90° elbow bend).
- Backwards kick in skate (instead of lateral). This leaves hips behind ball of foot on glide ski. This is a kick problem not (necessarily) a hips problem. Try working on lateral kick (soccer kick/heel kick) combined with pelvis in “up” position; go back to low-power no-poles skate.
- Head 180° out of synch in skate. A lot of skiers do this! Here the skier looks down at the start of the DP motion and up when at the point of maximal core compression. The upper spine and neck are thus moving in the opposite direction of the core so this induces tense upper torso and tenses shoulders. This is a head problem not a core problem. Try the self-explanatory “neck brace drill:” look up when you come up, down when you go down.

Practice this checklist when observing skiers or watching ski videos! If you see someone who “looks good,” why do they look good? If you observe an experienced skier who appears awkward, why is this so?

Providing individual feedback. Individual feedback should be provided one-on-one (not in front of the group) and done in a constructive way. One effective method is to describe two things the skier is doing well/has improved upon, then give one thing to work on. Never give more than two things to work on. Although it can sometimes be helpful to explain what the skier is doing wrong when accompanied by how to fix the problem, it is never effective to criticize a skier in front of others.

3.3. Additional technique resources

The “For Coaches” page on the club Web site provides the primary technique resources used by the club (technique videos and the EMBK/CSU progressions). The page also includes links to NENSA and USST technique resources.

4. Tracking Skier Progress

We want every skier to receive quality instruction, to be met where they are, and to advance as quickly as they are able. This section contains two charts and a checklist to help track skiers, to see where they have holes in their development, and to maintain a club record of skier progress.

Charts 4.1 and 4.2 provide markers for tracking skier progress, for skate and classic respectively. The normal order in which these skills are acquired is indicated by the red numbers. Thus the red numbers can guide a coach in determining which set of skills the skier should normally acquire next, and in assessing the gaps in a skier's technique. These charts focus solely on skills (not aptitudes).

Charts 4.1 and 4.2 are summarized into a skier progress checklist (unnumbered table following the charts). Copies of this checklist will be distributed towards the end of the season and country head or assistant coaches will be asked to complete a checklist for each skier, which will then be retained by the club.

Chart 4.1. EMBK Skier Progress Markers: Skate

Level	No-poles	V2-alt	V2	V1
Fundamentals	<p>(1) Kick and glide</p> <ul style="list-style-type: none"> • long glide, complete weight transfer • hips forward, stable and relaxed upper body, zipper vertical • approximately lateral kick (not stepping forward or walking) 	<p>(2) Timing and glide</p> <ul style="list-style-type: none"> • poling timing synched with kick • full weight transfer • capable of long glide • hips forward (erect position) 	<p>(2) Position and timing</p> <ul style="list-style-type: none"> • correct arm and leg V2 timing • hands coming up moderately high (at least chest height) 	<p>(3) Position and timing</p> <ul style="list-style-type: none"> • “answer the phone” hand position • correct timing of poling and kick • more or less lateral push (not walking up hill) • <i>at WST</i>: can V1 up left fairway hills
Intermediate	<p>(3) Smooth, stable, and relaxed</p> <ul style="list-style-type: none"> • Stable core when holding poles horizontally or vertically • clear push from midfoot or heel (lateral kick/soccer kick) • can add power to kick and maintain stability, glide, and forward hip position 	<p>(3) Core engagement</p> <ul style="list-style-type: none"> • high hands, 90° elbows in “up” position • crunch initiated in upper core • connected head followthrough • rhythm of glide in “up” phase – no pause with hands down 	<p>(4) Core engagement and weight transfer</p> <ul style="list-style-type: none"> • capable of long glide (complete weight transfer) • hands come up to shoulders • hips forward, rotated up (come “fully up” in recovery) • stable core, vertical zipper, shoulders square down the track • <i>at WST</i>: can sustain V2 for length of flat fairway near the river 	<p>(4) Core engagement</p> <ul style="list-style-type: none"> • crunch initiate in upper core • power provided equally by both hands as in DP • shoulders square down the track • lateral kick from midfoot (or soccer kick) • <i>at WST</i>: can V1 up Mt. Weston
Proficient		<p>(5) Smooth and powerful</p> <ul style="list-style-type: none"> • quick simultaneous power application in legs and core/arms • arms and body go forward and up (not just up) to preload poling • strong kick on both sides as arms come up (weak side) or crunch (strong side) • hip swing and/or power leading with hip 	<p>(5) Smooth and powerful</p> <ul style="list-style-type: none"> • shoulders rounded and relaxed • hips stay in the forward position • quick, powerful, and synchronized kick and core crunch • arms are levers for core crunch (synchronized not separate) • <i>at WST</i>: can V2 up the left fairway hill towards the clubhouse 	<p>(5) Smooth and powerful</p> <ul style="list-style-type: none"> • weight transfer: hips move over glide ski • “high hips,” ankle flex (“pressed forward”), femur approximately vertical • arms are levers for core crunch (doesn’t collapse on arms) • nearly symmetric kick and lower body • approximately half of power provided by core • can execute hot foot” drill (jump-skate) • can switch lead arm mid-hill depending on conditions

Chart 4.2. EMBK Skier Progress Markers: Classic

Level	Double pole	Striding	Herringbone	DP-kick
Fundamentals	<p>(1) Basic DP</p> <ul style="list-style-type: none"> Hands up, hips up (forward) when initiating DP Keep feet together 	<p>(2) Balance and kick</p> <ul style="list-style-type: none"> No poles: Can stride enough kick and balance to move forward on flats without falling Arms swing from shoulders arm swing and stride are synchronized executes falling forward drill from ankles (no skis) 	<p>(2) Basic herringbone</p> <ul style="list-style-type: none"> hips forward and over ski, with sufficient edging, to be able to herringbone at a “walking” pace. No gliding! at WST: can herringbone up all hills except Mt. Weston 	<p>(4) Timing</p> <ul style="list-style-type: none"> synchronize arms coming up with kick no kick in DP phase typically kick part is abbreviated at this level
Intermediate	<p>(3) Smooth, stable, and relaxed</p> <ul style="list-style-type: none"> DP work being done by core and upper body – not a sit-down squat. follow through with hands releasing poles and eyes down towards ski tips at end of DP weight stays on balls of feet – not back on heels in squat able to DP for 100m comfortably 	<p>(3) Weight transfer and glide</p> <ul style="list-style-type: none"> can execute 1-at-a-time scooter drill with glide on both sides glides in no-poles skiing can ski up gentle hill without poles hips always forward and up forward bend from ankle; back and shin parallel release pole at end when striding with poles shoulders mainly stable (staying in constant plane) 	<p>(3) Balanced</p> <ul style="list-style-type: none"> hips forward at all times; balls of feet under hips when initiating at WST: can herringbone up Mt. Weston at a walking pace 	<p>(6) Weight transfer, and glide</p> <ul style="list-style-type: none"> full weight transfer as hands come up – so get some glide before putting other ski down releases poles at end of DP phase
Proficient	<p>(5) Forward position, abs connected to arms</p> <ul style="list-style-type: none"> Comes up <i>and</i> forward with high hands to initiate DP, hips up and forward. Heels raise as body weight goes forward while coming up Arms and abs synchronized Power comes through crunch in initial 20% of motion – it all happens in front of the skier (no “push”) 	<p>(5) Smooth, forward, and strong kick</p> <ul style="list-style-type: none"> arms swing “down the track,” coming up to 90° elbow bend with hands shoulder height quick knee pop for setting wax/kick as arms come up hips open (rotate) as primary method for weight transfer and also to extend kick shoulders rounded and relaxed Kick initiated from flat foot (doesn’t go up on ball of foot too soon) can vary tempo as needed on flats or steep sections can stride down moderate hill 	<p>(5) Quick and light</p> <ul style="list-style-type: none"> can maintain high tempo for short bursts – a half dozen strides at WST: if snow is firm, can herringbone at high tempo (maintain for at least a half dozen strides) up all hills except perhaps Mt. Weston. 	<p>(7) Smooth and powerful</p> <ul style="list-style-type: none"> shoulders rounded and relaxed hips stay in the forward position hands come up quickly and powerfully (at speed), resulting in powerful kick DP component shows proficient DP technique (abs crunch, power application in first part of DP in front)

EMBK Skier Progress Checklist

Name: _____ Age: _____

Country: _____ Date: _____

	F = Fundamentals I = Intermediate P = Proficient			Comments
Skate	(circle one)			
no-poles	F	I	P	
V2-alt	F	I	P	
V1	F	I	P	
V2	F	I	P	
Classic				
Double pole	F	I	P	
Striding	F	I	P	
Herringbone	F	I	P	
DP-Kick	F	I	P	

Additional comments:

Appendix A. Annual On-Snow Lesson Plan

The following tables outline a lesson plans for skate and classic. Within each table the lesson plans are organized by major technique component. Within a component, the plans have various optional extensions. Implementation of the lesson plans should develop progressively over the year. For example, if you have had one lesson on no-poles skate and V2-alt timing, and if your skiers have the basic timing, start by reviewing the rhythm and making sure everyone has the rhythm, then add in a new element, for example long glides and the rhythm of pausing at the “up” but not “down” phase. The overall idea is that a practice should have an element of review of the basics, introduce a new concept, do a drill to practice and reinforce the new concept, followed by free ski that is fun but focuses on practicing the concept learned (choose terrain accordingly). Daily practice plans thus roll with overlap from one stage to the next, where one stage builds on accomplishing the goals of the previous stage.

Remember, even for the best skiers, it is important to start the season with basics!

NOTE: these plans refer to some drills by name, the drills are described in the EMBK/CSU skate and classic progressions available on the EMBK Web site.

Table A.1. Practice Plan Templates: Skate

<p>1</p>	<p>No-poles skate</p> <p><u>no-skis</u></p> <ul style="list-style-type: none"> • BAP + basic rocking motion/vertical zipper • Jump laterally not vertically/from center of foot <p><u>On skis</u></p> <ul style="list-style-type: none"> • Basic no-poles skate: relaxed and quiet upper body, lateral kick. Start with minimal power, move to moderate. <p><u>Extensions</u></p> <ul style="list-style-type: none"> • Soccer kick • add power in no-poles skate • No-poles skate holding poles horizontal • No-poles skate holding poles vertical • ski in figure 8s, or circles, or around cones: transition from turn to lateral push with stable upper body/vertical zipper • Always focus on hips forward! • Drill variations: follow-the-leader; work on maximizing glide (i.e. complete weight transfer) • Avoid high power no poles skate (becomes uncoordinated and loses the calmness and grace that is the point of this drill) 	<p>V2-alt</p> <ul style="list-style-type: none"> • Follow rhythm of instructor (from the start, pause in the “up” position, hands rebound immediately from the “down” position). • combine basic poling motion to no-poles skate • Initially focus on: <ul style="list-style-type: none"> ○ timing/coordination of hands and kick ○ relaxing shoulders and engaging abs as soon as timing is mastered <p><u>Extensions</u></p> <ul style="list-style-type: none"> • focus on high hands (which should bring hips forward/up). Optional drill: wiggle wiggle. Cues: <ul style="list-style-type: none"> ○ “pinky in the eye” ○ “lead with your elbows” (forearm should be horizontal at maximum “up”) • Make sure rhythm is pause with hands up: there should be no pause when hands are “down” • focus on soccer kick – so legs are having lateral push • Drill variations: follow the leader; “ride the glide” (super long glide with quick power application between) • Stratton swing (this is hard and requires complete weight commitment) • Once pause at “up” is accomplished with good balance and position, wean them from the pause by having a more continuous flow in V2-alt
<p>2</p>	<p>Double pole (as part of skate progression)</p> <ul style="list-style-type: none"> • Robot drill • Robot into full DP (focus on not sitting down) • transition into fluidity from robot drill – relax but continue to get power from core not squat 	<p>V2</p> <ul style="list-style-type: none"> • Robot into V2. <i>This is the key drill for learning V2 – it only works if you start with a very tight “robot” drill. Problems with V2 timing are often solved by going back to robot into V2.</i> • V2 on flats. Initially focus on: <ul style="list-style-type: none"> ○ proper leg/arm timing ○ lateral kick (soccer kick) ○ abs crunch ○ Full weight transfer (not rushed/not stuck in the middle) <p><u>Extensions</u></p> <ul style="list-style-type: none"> • Hands coming up to shoulder or chin height – as hands swing up, hips come up and forward (and ideally stay forward in kick). • Accentuate glide: V2 with very long glide • head connected to shoulder: eyes up in up position, eyes towards ski tips at end of crunch/down position

Table A.1, Continued

<p>3</p>	<p>V1 preparation: on gentle uphill</p> <ul style="list-style-type: none"> • No poles skate up hill. Key here is pressed forward position from the ankles – hips should be forward. Initially do this with minimum power, then moderate power (not high power) • Focus on lateral (soccer) kick 	<p>V1</p> <ul style="list-style-type: none"> • In place: proper hand position. In place, follow the instructor working on combined hand/leg rhythm. • V1 on flat – a few strides only to get the timing, starting from rest in the proper position. • V1 up hill. Initially focus on: <ul style="list-style-type: none"> ○ shoulders square up hill ○ strongly asymmetric hand position ○ hips forward – not outhouse position! ○ Correct pole/leg timing. A common beginner error is having timing 180° off, if you see that have them switch lead (“hang”) arms. <p><u>Extensions</u></p> <ul style="list-style-type: none"> • Sequence for ab crunch/upper body power: <ul style="list-style-type: none"> ○ DP up hill (gentle hill), have skiers become aware of their upper body crunch ○ Add in legs – but emphasize all power should be coming from upper body ○ Then add in power upper and lower. This should be short full power bursts – 10 strides max. The point is for them really to use their upper body • Hot foot drill
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Table A.2. Practice Plan Templates: Classic

<p>1</p>	<p>No-poles <u>no-skis</u></p> <ul style="list-style-type: none"> lean forward with partner – feel forward position/ankle bend without partner, fall forward, foot shoots forward automatically “nerd walk” shuffle, flat foot, hands on hips, forward lean from ankles <p><u>On skis</u></p> <ul style="list-style-type: none"> Shuffle on skis as needed to get used to skis Scooter drill. One stride at a time, then linked strides. <i>Master this drill and you will be a good classic skier.</i> No-poles diagonal stride, focusing on full weight transfer, striding from flat foot <p><u>Extensions</u></p> <ul style="list-style-type: none"> in single-stride scooter drill, hold the glide as long as possible. Get details right: push from flat foot, quick kick impulse asymmetric no-poles striding in scooter drill rhythm on flats: exaggerate the glide (“ride the glide” drill) no-poles diagonal stride up gentle hill – can they get the full weight transfer needed to get kick no-poles diagonal stride down gentle hill – can they get long glide? 	<p>Add poles</p> <ul style="list-style-type: none"> without moving, relaxed arm swing from shoulders, elbows closing to 90° as arm swings to shoulder or chin height. if no-poles diagonal stride is going well, have skier hold the poles but angle them so they never plant – have the same feeling as the in-place arm swing add pole plant with no power, just an extension of no-pole striding Initially focus on: <ul style="list-style-type: none"> timing/coordination of hands and kick maintaining weight transfer in lower body arms swinging from shoulders <p><u>Extensions</u></p> <ul style="list-style-type: none"> arm swing: “throw water down the track” (adds forward direction and vigor to the arm swing) stride up hill – tighten tempo “running drill”: uphill “running” drill: set down two poles 7m apart on slight uphill, ski to first pole, then run (as in regular running) to the second ski pole, then stride afterwards. This can be done with or without poles. The running forces the hips forward and a sharp kick. Compression and knee pop: try punch up with hands (no-poles), no-poles striding down gentle hill.
<p>2</p>	<p>Double pole</p> <ul style="list-style-type: none"> Robot drill classic DP (focus on not sitting down) transition into fluidity from robot drill – relax but continue to get power from core not squat <p><u>Extensions</u></p> <ul style="list-style-type: none"> work on coming forward and up in DP – slight heel lift as skier comes forward arm angle in DP: 90° elbow bend (not way out in front) focus on hips staying forward all the time – coming forward in the up position then crunch with hips staying forward No-pole double pole. Have them try to double pole with no poles. This requires standing broad jump motion. Have “head follow body:” keep neck straight as extension of upper backbone so that shoulders stay nicely rolled forward and relaxed. 	<p>Double pole - kick</p> <ul style="list-style-type: none"> work on DP-kick timing without moving (in group, following the coach) DP kick, relaxed with full glide (weight transfer) <p><u>Extensions</u></p> <ul style="list-style-type: none"> Practice doing standing broad jump (no skis/poles) – feel power coming from hands swinging up and through. Add poles and retain this feeling. practice gliding in the “up” position – requires complete weight transfer Make the whole stride as relaxed and fluid as possible; then add power as the hands and body come up simultaneously practice alternating feet (DP-kick with alternating kick foot)