



Junior Programs Coaching Manual

October 2013

Coaches-

Welcome to the 2013 update of the NSCF Junior Programs Coaches Manual. We have updated a number of sections in a way that we hope makes this a more practical handbook, and something that ties into the structure we are putting in place to help guide our programs. As coaches, you are the ones out there where the ski meets the snow, so we encourage your feedback on any of this, and any insight in how we could make this manual more useful or what you would like to see from our coaches education days. Thanks for your commitment to making skiing a success for the youngest skiers in our community!

Pete Leonard

NSCF Director of Skier Development

Development Windows

During a young person's growth and development there are various key periods when they are able to make pronounced gains in their physical abilities. Keeping this in mind not only gives them the opportunity to develop to their potential, but more importantly creates a positive experience for them and sets them on a track for reduced injuries and a healthy, life-long involvement with physical activity. The Nordic Ski Club of Fairbanks Junior Programs uses this knowledge in designing age appropriate lesson and training programs for the young skiers in our community.

The 'key periods' mentioned in the paragraph above are commonly referred to as 'development windows.' For the purposes of this packet, our main focus is on skill development or the athletic ABCs (Agility, Balance and Coordination) because these are the primary windows that are involved with our Junior Nordics program, or the primary focus of our adult lessons program. It is always possible to develop the various physical capacities, so we provide some information on fitness development – and certainly age-appropriate means of fitness development can also make it easier to enhance skill development.

The following chart lists the approximate time of the various 'development windows.' The ages are listed as developmental ages. Unlike chronological age – the years and days since birth – development age takes into consideration the biological growth and maturation, along with social, emotional, cognitive and motor realms. As such, it can be thought of as an index of development reflecting the true overall situation of an individual. While there are metrics that can be applied to determine the actual age, for our purposes we can consider a given developmental age to be representative of 'average' development for children at that chronological age.

Development Windows by Development Age

| Capacity | Female | Male |
|------------|-------------------------------------|---|
| Stamina | During Growth Spurt | During Growth Spurt |
| Speed | 6-8 (agility), 11-13 (max velocity) | 7-9 (agility), 13-16 (max velocity) |
| Strength | After the peak of the growth spurt | 12-18 months after the peak of the growth spurt |
| Skill | 8-11 | 9-12 |
| Suppleness | 6-10 | 6-10 |

Session Design

An hour is not all that much time, but when used wisely, a lot can be accomplished. The main goal is for skiers to be active during the whole session, as this is really what will help them develop the best base of agility, balance and coordination for both lifelong health and high performance. Remember the three main reasons young people are involved in sport are to have fun, be social, and improve their skill. A well-designed session should facilitate all three of these, and if you miss as a coach on one count, you at least can be successful and leave the skier with a positive experience by hitting on the other two.

Top 3 Reasons Kids Stay Active in Sports

1. To have fun and enjoy themselves
2. To improve their skills, to seek competence
3. To be with friends, make new friends and do things with friends

(from Keller, Lester, [What Parents want from a Ski and Snowboard Club](#), USSA Club Excellence Symposium, May 2013)

1. Warm-Up (5-10 min)

The general idea in the warm-up is to progress from slower movements in a limited range of motion to more dynamic movements in a full range of motion.

- a. **Light Activity** – while some skiers will show up having been active, and are therefore ready to jump right in, this period is here to make sure that everybody is ready to get moving. Often times this could be happening as skiers are arriving so activities in a relatively contained area are quite practical. These could involve things like jumping jacks on skis, ski stars, doing circles and figure 8s and any number of other creative activities.
- b. **Mobility Warm-Up** – a series of controlled movements through a full range of motion that are aimed at increasing mobility, developing strength and exciting the nervous

system prior to training. This also helps develop 'suppleness' (i.e. range of motion with stability) that is an important development window between the age of 6 and 10 and important for proper athletic movement in general.

2. Skill introduction (10-15 min)

We put this early in the session when the skier is fresh physically and mentally and best prepared to absorb the material. Less is quite often more here - pick only one or possibly two easily connected skills to work on one at a time. Doing a good job of teaching it through a well-designed sequence of drills with minimal verbal instruction is paramount.

3. Reinforcement Activity (15-20 min)

This is the activity that reinforces what the skiers have just learned. It could be a relay or a game or a slalom course or a tour. Whatever it is, it is carefully selected for terrain and content to help reinforce the goal of the day – typically this is the skill the skiers have been working on that day so they gain a sense of mastery. In a well-designed lesson, the transition from skill to reinforcement is virtually seamless.

4. Game/Fun (may also reinforce skill) (10-20 min)

This portion of the session is mostly about having fun, and working on fundamental athletic movements to develop the ABCs (Agility, Balance and Coordination). However, bonus points if you can also reinforce the skill you have been working on today! Rules should be simple. This is when you ensure the kids are leaving ski practice with a smile on their face and are looking forward to returning to coming back next time for some good physical activity.

Mobility Warm-Up

The mobility warm-up is designed to improve the athlete's range of motion, prepare them for the activity that lies ahead of them, as well as addressing basic physical fitness.

As opposed to static stretching (holding a stretch), the mobility warm-up involves controlled movements through a full (or large) range-of-motion without pausing and holding any position. Whereas static stretching relaxes the muscle overriding neural reflexes and creating some degree of 'muscle slack', the controlled movements of the mobility warm-up keep the muscle elastic and engage the nervous system. This is not to say that there is no place for static stretching, it just fits better as a relaxing activity after exercise.

The exercises below are meant to be simple, but also address some specific deficiencies we see in skiers and our population today. They can be performed with skis on or off – while the fact that skis glide can be a bit more of a challenge, it can save time when working with younger kids and also provides a balance workout as well. With so many of these exercises engaging the three main joints of the legs, they also provide skiers with appropriate strength and a good feeling for how to engage their lower body in an athletic position – one of the fundamental skills in skiing. These are also a way to help young skiers develop suppleness in their movements – a key development window for skiers age 6 to 10.

NOTE: If a skier experiences pain while performing any of these exercises, do NOT have them just push through it, but instead limit the exercise to the range of motion where they can perform it pain-free. In the case of pain, skiers should consult a health professional (doctor, PT, etc.) to find out the root of the cause.

We generally limit each exercise to 10 repetitions as this is a reasonable number to accomplish the goal of the warm-up without creating excess fatigue for the body. It is also important to make sure all movements are gradual and controlled through the full range of motion in which they are performed.

1. Ski-pole rolls. The skier grabs their pole in both hands approximately 'elbow span' apart and holds it horizontal over their head bringing it gently back and forward stretching out their shoulder and chest muscles. Make sure skiers stand tall and make this movement gently – the primary goal is to stretch, not to get the poles behind the head.
2. Overhead Squat. The skier stands with feet shoulder width apart or slightly wider. Skis are slightly angled out in a 'V.' A pole is held overhead in both hands with arms straight – the grip is 'elbow-span' apart. The skier then squats down and aims to keep the pole directly above their head as they do so. When squatting pressure should be evenly distributed over the entire foot so the knee does not cave in (i.e. the skier's knee remains along a straight line from hip to ankle). Knees also do not bow-out – one can cue in on having their knee cap go directly over the second toe (next to the big toe). Heels remain on the ground during the whole motion. The goal is to keep the pole overhead and squat down until the hip reaches knee level or the thigh is parallel to the ground. One may also go lower but it is imperative that the movement is controlled (regardless of depth attained). If you are doing this from week to week, try to focus on one or two cues each time and allow the technique to be gained over the course of the season.

The overhead squat works on posterior shoulder strength, ankle and hip flexibility, and helps to coordinate triple extension of the ankle, knee and hip joint.

3. Ski-pole Twists. Standing upright with good posture and an athletic body position, the skier places their poles behind their shoulders and gently twists from side to side. The twist should happen primarily in the trunk with the legs more or less stationary.
4. Lunges. With both poles planted in the ground, the skier slides one ski forward and one ski back into a lunge position. The poles help with balance (which is good early in the warm-up and for less experienced skiers) and keep the upper body upright allowing for a better stretch of the hip flexors. Skiers should aim to keep their hips rotated forward (waist belt-line is horizontal) to provide a good stretch without needing to spread their feet very far. The back knee should come down to ski level.

The lunge works on hip flexor flexibility and also helps with developing a lot of the smaller muscles in the leg and hip that are associated with balance.

More advanced variations of the lunge include:

- a. Rotation Lunge. Holding your poles at chest level, lunge and twist toward the side of your forward foot. A good twist of the torso would have you facing completely to

the side. These will create a greater balance challenge and enhance the stretch of the lunging movement.

- b. Tilting Lunge. Holding your poles over your head, lunge and tilt toward the side of your forward foot. Reaching over the top of your head, you should be able to tilt and reach until your poles are vertical. This is an excellent stretch of the hip flexor muscles (iliopsoas).
5. Big Circles. Stand and hold your poles over your head. Keeping your legs straight, bend at the waist as if you were going to lay your poles parallel to one of your skis in the snow, but instead of laying the poles in the snow, rotate the poles over as if you were going to lay them parallel outside your other ski and then stand back up holding your poles over your head. Complete the circle five times in each direction. This is a great stretch for the hamstrings, lower back and IT band.
6. Double Pole Dip. In the double pole dip the skier places their poles in the snow at arms-length in front of them and hinges at the waist keeping their arms and legs straight. Be sure to keep moving through the range of motion and not pause at any one spot. This helps stretch the shoulders and calves and hamstrings.

General Concepts for Teaching Skills

When teaching physical skills it is best to minimize verbal instruction. This is particularly true with younger skiers as auditory comprehension and memory are not fully developed until the early teen years. Too much verbal feedback only serves to confuse and create stiff, robotic motions. In contrast, our goal is to create smooth, flowing and rhythmic movements. Instead focus on demonstrating exercises and having the skiers mimic proficient skiers and only give a couple of carefully selected cues to reinforce what the skier is doing. The exercises and progressions in this packet are typically aimed at developing kinesthetic awareness - putting skiers in a position to learn the feeling that they should have when they are performing a given technique.

In general it is best to progress a skier from something they know to something unknown. When teaching skills there are a few ways to do this. In general one should aim to progress from general skills to specific skills (i.e. running to classic striding), simple skills to complex skills (start striding without poles before trying it with poles), or from slow to fast (learn to skate without poles on a flat before trying to skate without poles on a downhill).

Key Progressions for Teaching Skills:

Known → Unknown

General → Specific

Simple → Complex

Slow → Fast

Finally, remember K.I.S.S. (Keep It Simple and Silly). Keep it simple because you only have a maximum of 10-15 minutes to instruct before you lose the young skier's attention. In a given session focus on one skill (two skills only if one builds directly from the other) and build the session

around that skill – too much complexity only serves to confuse. Keep it silly or fun or playful because your energy will engage the skiers and help them to have fun, which is of course one of the main reasons kids are and remain involved in sports!

Activities – How much?

When designing a lesson it can be difficult to know how much is enough and what is too much physical activity for a young skier. As adults it has been a long while since we have been young and our memories of what we did then are often faded and skewed. Do too much and the joy of the activity fades, and indeed the training is often just making the skier tired and may not actually helping them improve their physical fitness – at least not as much as an appropriately designed activity. An engaged skier is a mindful skier and mindful practice is the key factor in improvement.

With prepubescent skiers, it is often much easier to overdo it than not do enough. A physical stimulus that may seem negligible to an adult can elicit amazing changes in a youngster. Below are a few charts to help you with designing games and activities. Keep in mind that these are general and aimed towards sports that take place on foot on flat playing surfaces. They are also only guidelines which can help you design an effective session, as a coach you have to be aware that there are many other factors that can affect the ability of your skiers to perform a given activity. The best thing you can do is to tune into your skiers and pay attention to their energy levels and motivation – when these start to fade they are clear signs that the athlete is nearing the point where they are ready to move on to something new and different. Remember what the great baseball coach Yogi Berra said: “You can observe a lot just by watching.”

Speed Training for 6-10 year-olds (adapted from Bompa, 2000)

| Forms of Training | Duration or Distance of Activity | Number of reps | Rest interval (min) |
|--|----------------------------------|----------------|---------------------|
| Games | 20-30 min | 1-2 | - |
| Relays | 10-15 m/yd | 3-5 | 2-3 |
| Speed Training | 10-50 m/yd | 4-6 | 3-4 |
| Speed training with turns, changes of direction, stop and go | 5-15 m/yd | 4-8 | 2-3 |

Endurance Training for 6-10 year-olds (adapted from Bompa, 2000)

| Forms of Training | Duration or Distance | Speed of Activity | Number of Reps | Rest interval (min) |
|--------------------------------------|----------------------|---------------------------------|---------------------------------|---------------------|
| Play and games | - | Medium to fast (for short play) | 2-4 | Variable |
| Continuous Relays | 40-200 m/yd | Medium | 2-4 | 2-3 |
| Unstressful Aerobic Activity (tours) | 20-60 min | Low and steady | 1-2 (depending on the distance) | - |

Speed Training for 11-14 year-olds (adapted from Bompa, 2000)

| Forms of Training | Distance of Activity | Number of reps and sets | Rest interval (min) |
|--|-----------------------------|--------------------------------|----------------------------|
| Relays | 10-30 m/yd | 4-6 | 2-3 |
| Sprints | 20-50 m/yd | 5-8 | 4-5 |
| Speed training with turns, changes of direction, stop and go | 5-25 m/yd | 5-10 | 2-3 |

Endurance Training for 11-14 year-olds (adapted from Bompa, 2000)

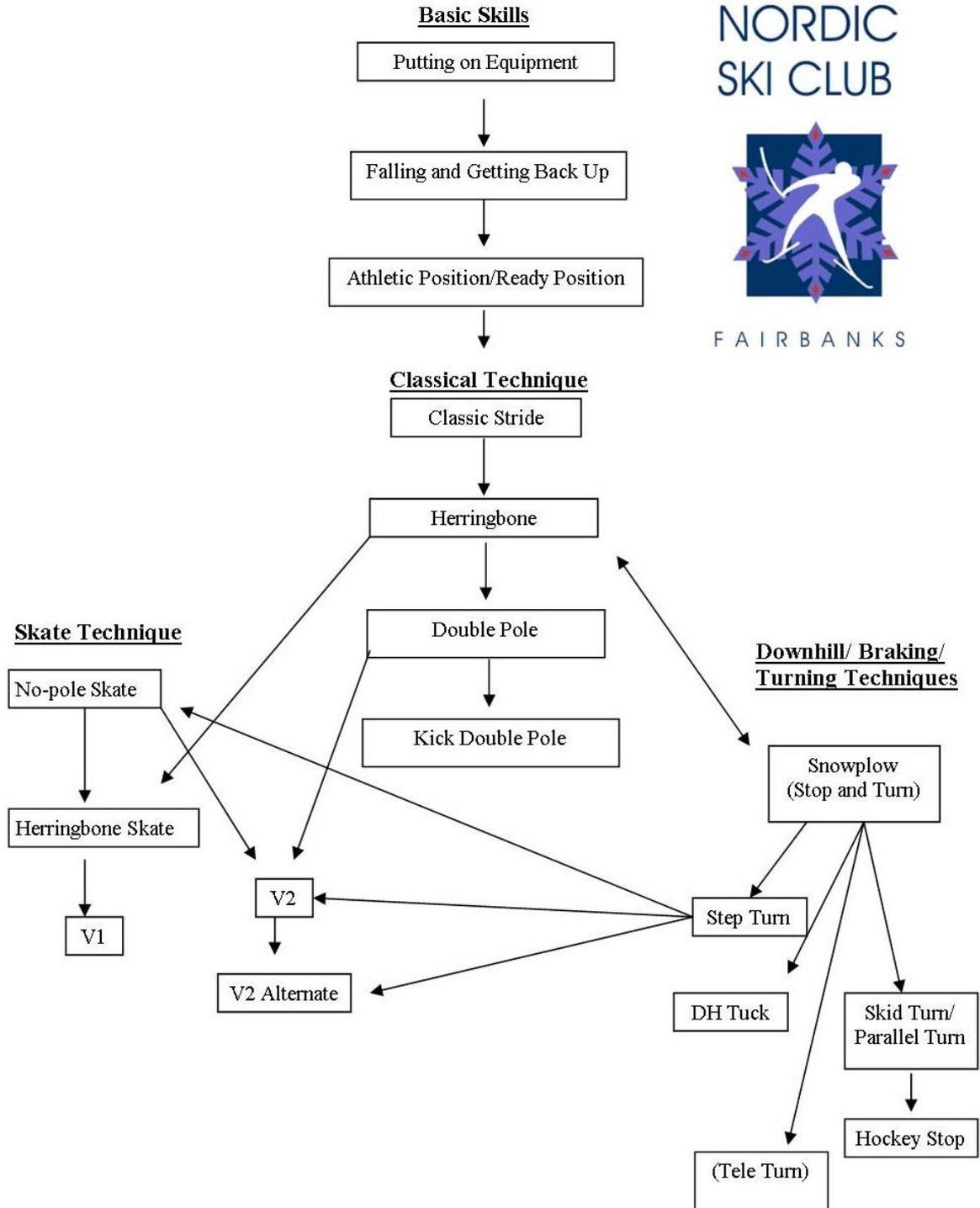
| Forms of Training | Duration or Distance | Speed of Activity | Number of Reps | Rest interval (min) |
|--------------------------------------|-----------------------------|---|---------------------------------|----------------------------|
| Play and relays, as in prepuberty | 40-200 m/yd | Fast to medium | 3-5 | Variable |
| Interval Training Runs | 200-400 m/yd | Medium | 3-5 (low numbers for 400 m/yd) | 2-3 |
| Aerobic Activity (long repetition) | 800-2,000 meters | Medium and Steady at times feel slight discomfort | 1-3 | 3-5 |
| Unstressful Aerobic Activity (tours) | 20-60 min | Low and steady | 1-2 (depending on the distance) | - |

NSCF Ski Skills Progression Flow Chart

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Teaching Skiing Skills

The chart on the previous page is a basic flow chart of how each technique builds upon and interrelates with other techniques. It is by no means exhaustive (there are many relationships between various techniques that are not detailed there), but stands to highlight some of the precursors that should be established with skiers before moving on to more advanced techniques at least within the technical framework which we present below.

As we expect most of the individuals reading this guide to be Junior Nordic coaches, our skill framework is organized by color-coded Junior Nordic group. We hope to solidify this framework as a means to help guide skiers through the various skill levels within Junior Nordics, and to guide coaches in the skills they focus on at each session.

Each skill is described with key thoughts and core teaching techniques. Depending on the skill, additional activities and drills to further refine the skill may also be included. Keep in mind that creativity will be your greatest ally in developing skilled young skiers.

The best way for kids to learn is by doing. As coaches the best thing we can do is put them in a situation that requires them to develop their ski skills naturally without excessive verbal instruction or feedback. Visual retention is much more highly tuned at this age, so good demonstrations with a high focus from the group are essential. If you are not comfortable demonstrating the skill, recruit a more-skilled skier to help you out (assistant coaches can be a great resource for this!)

With these learning traits in mind, we recommend the following methodology for teaching many of these techniques, drills and activities (it might not work so well with some). The methodology is borrowed from the NENSA Bill Koch League Manual, and tunes into all three learning styles to help connect with all types of learners (visual, auditory and kinesthetic).

1. Gain the attention of the group. Minimize distractions and ensure their focus on the demonstration.
2. Demonstrate the exercise or skill without any verbal instructions.
3. Have the skiers try it once simply by copying what they saw.
4. Demonstrate the skill and this time add in a few verbal cues to help out.
5. Have the skiers repeat the exercise and give them feedback in the form of simple verbal cues.

Keep in mind, a major aspect of the art of coaching is taking practical knowledge and adjusting it to the conditions which you face on a given day. Those conditions can be environmental (temperature, snow conditions, weather) or be related to the group you're working with (such as the group's energy or focus). Remember to use your creativity and have fun!

Stripes (5-6yrs old Pre-K & K) – Classic Technique!

Organized mix of play and discovery where the children learn to ski naturally with very limited and basic formal instruction. Simple games of tag, follow-the-leader and exploratory trips around the ski area are the primary focus of this group. The main goal is to create an environment that helps

cultivate the joy of skiing. In other words: play, play, play! We recommend skiing exclusively without poles for skiers this age in order to keep things simple and to keep hands warm. This will also help focus on balance.

PRIMARY SKILLS:

1. **Putting on equipment properly.** Proper use of equipment is essential for an enjoyable skiing experience. While it might or might not inhibit skiing at first, after a while it can become a limiting factor in one's skill development. Establishing good habits from the beginning prevents this from occurring.
 - One of the most prevalent issues we see is that skiers with simple loop straps on their poles just reach through the strap to grab their handle. Skiers should instead reach through the strap from below so they can push on the strap as they use their poles.
 - Use creativity and your imagination to help kids remember what to do. For example a story about a skiing spider crawling up the pole and through the strap to get ready to go for a ski (or something similar) can help create a strong image with young skiers.
2. **Falling and getting back-up** – learn to get back up after falling. There are many ways to do this, but the 'text book' method that we recommend teaching beginners is after they fall to begin by rolling on their back and untangling their equipment. The skier should then roll on to their side with their skis pointing across any slope they are on (across the fall-line) and then to stand back up by shifting their weight laterally on to their feet using their poles for assistance. This can be a great skill to use to get skiers warmed up at the start of a session.
3. **Classic Stride** – Helping skiers develop a connection with the gait cycle (running/walking) that they know from on foot is highly important for developing classic technique. At this age prompting skiers to run or walk on their skis and feel for glide can be enough to get things rolling in the right direction. More complex drills can be saved for a bit later.
4. **Balance** – stand on skis, stand on one ski

Green (6-7 yrs old K & 1st Grade) – Classic Technique!

PRIMARY SKILLS:

1. **Putting on equipment properly.** See above for skill description
2. **Falling and getting back-up.** See above for skill description
3. **Athletic Position or Ready Position** – This is a pretty simple skill and one that is more reinforced through good activity than anything that is 'taught' like some of the more complex skills. Essentially, good body position consists of having a good upright posture with relaxed upper body and arms hanging at your side, and springy legs with weight balanced on the whole foot (pressure is centered on the ball of the foot instead of the heel or toes). One of the critical things to reinforce here is using all three joints of the leg to go

raise and lower the body – bending the legs to go over bumps or jump up in the air should be accomplished with the hip, knee and ankle joints. This is also known as ‘triple extension.’

- The active warm-up exercises detailed earlier in this manual are a great way to help skiers tune into this early in a session. We highly recommend them.
 - Small jumps in place on skis can help a skier start to feel ‘springy,’ and that elasticity will more easily transfer to their skiing. This can be easily incorporated into a warm-up while skiers are getting ready.
 - To practice a good arm-swing with this drill for classic skiing you can have skiers swing their relaxed arm like a gorilla or a caveman. This can be a good tune-up for doing classic striding with or without poles.
 - Bumps. Going over bumps such as those in the terrain garden at Birch Hill is a very natural way to reinforce the suppleness and elasticity a skier needs in their legs. If they don’t learn to absorb the bumps (aka ‘pump the bumps’) they will catch some major air on the other side. If they need additional reinforcement, placing an obstacle to duck under at the top of each bump forces them to bend their knees to get under. For younger skiers, playing follow-the-leader and having them duck or even crawl under low obstacles can help reinforce using their legs.
4. **Classic Stride (w/ and w/o poles)** – start just walking/shuffling and then progress to a stride. Skiers should strive to balance on one foot as they glide, as this is important for being able to effectively engage the grip wax with the snow.
- Hot Feet. This is a great drill for helping a skier develop the quick ‘kick’ needed to avoid slipping on an uphill. Essentially the skier skis casually into a set area of 15-30 feet where they are told to imagine they are walking on coals so they have to run in short strides with really quick feet and then once they are through that area they resume a classic stride aiming to incorporate the quickness of the ‘hot feet’ section. This drill can be greatly enhanced with kinesthetic aids by marking the snow with lines which the skier is required to land on with the ball of their foot. For an adult size skier these lines should be about 2-3 feet apart, although that length should be adapted for smaller skiers. This drill can be done both with and without poles.
 - Bounding. Bounding is a simple way to reinforce a strong kick and to ensure full weight transfer from ski to ski. This drill is set up much like the Hot Feet drill, but instead of short quick steps, this time the skier bounds from ski to ski in the designated area, trying to get lots of air as they do so. Creating a mental image of a (snow?) gazelle or moose hoofing through the woods can help a skier visualize the proper tempo and float. Cones or marks can be set up at a slightly wider spacing than the Hot Feet drill (about 4.5 or 5 feet apart for adults) and skiers can aim to bound from one to the next. Again, the skier skis out of the bounding section aiming to incorporate the feeling of the power and weight transfer into their classic stride.

Additional Teaching Methods (great for refining the skill and mixing up lessons once the basics have been taught):

- Practice glide on one foot – this can be emphasized by trying the classic long jump . first running, and then trying to glide as far as possible. Another option is the shuffle-shuffle-glide drill where the skier shuffles two strides to gain momentum and then glides longer on the third stride, shuffles two, then glides, etc.
 - Classic scooter. This drill reinforces balance and the relaxed arm swing of the classic stride. The skier takes off one ski and scooters along while swinging their arms as in a classic stride and gliding in an extended position. (When in the extended position, remember to have the opposite arm and leg forward.) Once skiers have the feeling of the scooter down, they can be challenged to do the least scooters between two cones and then do it again and try to beat their personal record. Great for working on balance! Bonus points for holding a good classic ‘extended position’ with both arms and the non-supporting leg extended as he or she glides.
5. **Herringbone** – sometimes called a ‘duck walk’ (duck or penguin references are lots of fun for little ones – Quack! Quack!). The skis are angled out in a ‘V’ requiring a somewhat wider leg stance to avoid tails landing on top of one another. One of the critical skills with the herringbone is teaching the skier to place their ski on edge so it gains purchase into the hill. This can be accomplished in a number of ways. We recommend having the skiers crawl on just their hands and feet (not knees) with their skis in a ‘V.’ Walk normally up the hill in this V-stance. Practice on gradual then progress to steep hills. Start without poles and then progress to using poles. With slightly more advanced athletes starting from a stop on a steep, but stride-able hill can teach them the continuum of uphill classical techniques from a wide to a narrow herring bone to a run to a diagonal stride. Any game, obstacle course, relay or other activity that involves a relatively steep section of uphill is great for reinforcing this.
6. **Snowplow (Braking and Turning)** – This technique is a natural complement to the Herringbone (what goes up, must come down!), and a natural combination of skills for a single lesson. Skis are placed in a ‘V’ with the feet and tails spaced wider apart and the tips closer together (but not crossed!). The resemblance to a slice of pie can be a good teaching aid. Practice slowing down on the downhill by changing the size of the pie slice (bigger slice = slow down faster, smaller slice = slow down more gradually). Skiers should learn to continuously vary the width of their ‘V’ to govern their speed. Downhill activities or tours including appropriate-sized downhills are great for reinforcement. Games such as red light-green light or creative variations such as red light – green light – yellow light or that involve ‘reduced speed zones’ can also teach this skill, particularly if played on a gradual downhill.
- **Snowplow Turning** Once the skier is proficient at the snowplow have them practice weighting one ski more than the other and see where it takes them – one visual cue is to have them imagine squishing the bugs in their boots, or using their poles to steer in the direction they wish to go (imagine holding a big steering wheel). A loose slalom course or a ‘human slalom’ with fellow skiers are fun ways to reinforce this skill.

Yellow (7-8 yrs old 2nd & 3rd Grade) – Classic and beginning Skate

PRIMARY SKILLS:

1. **Classical Stride** – (w/ and w/o poles) see green group section above for description. You are never too good to reinforce balance and complete weight shift from the various drills described above.
2. **Herringbone** – see green group for description. Adding in a running or bounding tempo with and without poles can challenge a skier's timing and coordination, as well as accentuate the need for balance and a skier's feel for their skis. Relays or obstacle course involving a steep hill can be fun for this.
3. **Snowplow (Braking and Turning)** – See above for description.
4. **Double Pole** – With younger skiers it is often best to begin with the double pole on a gradual downhill. To start, have the skier practice keeping their speed up by pushing with both of their poles. A skier can lean into the poles a bit to get a feel for using their body weight to create force onto the poles. Still, arguable the biggest challenge for young skiers is to create enough force on their poles to have the double pole be effective. As such, one of the best ways to develop the double pole is to focus on adding energy to the motion.
 - a. Abs-only double pole. The abdominals are the key muscles for powering the double pole. Have skiers begin by thinking about using their stomach muscles for double poling.

Additional Teaching Methods (great for refining the skill and mixing up lessons once the basics have been taught):

- b. Kangaroo Double Pole. Here the skier accentuates a 'high' starting position to the double pole by jumping up as they recover their poles and coming down with their weight on their poles. It can be best to start this with a pattern of one jump every three poling cycles, and then progress to every other and then every cycle.
 - c. Fast-as-possible double pole. Here the skier double poles with as quick a turnover as possible. For smaller skiers or slow conditions, best to start this one on gradual downhills.
 - d. Double pole long jump. To reinforce a strong double pole, skiers can see how far they can get from a set point in a certain number of double poles and then try to beat their personal best. Alternatively skiers can double pole up to a certain point and then see how far they can glide and then try to get their double pole speed up higher to beat their previous record.
5. **Step Turn** This is a critical precursor to effective skating as skating is really just step turning side to side instead of in only one direction. This makes step turn drills a great way to put the skier in a situation where they can feel the lateral weight transfer of skating. These are great drills to tune a skier's balance prior to teaching skating skills.
 - a. Downhill turns. The progression might start on an open downhill slope with the skier simply making smooth turns across the slope.
 - b. Slalom. Performing step-turns through cones on a downhill encourages the skier to learn to control the tightness of their turn to varying constraints.

- c. Human Slalom. A fun alternative to cones is to use the other skiers in the group! Skiers ski down the slope performing step turns through the other skiers who function like the cones and once they have gone through the whole group become a gate themselves.
- d. Circles. This can be a great warm-up activity. Skiers simply find an area to make their own circle and practice turning both left and right. Vary the widths of the circle making them tighter or more gradual and encourage the skiers to accelerate as they ski. Begin without poles and then progress to using poles (remember to plant the poles while on the outside ski). This is a great way to teach the timing involved with poling in V2 and V2 alternate. Start slowly with the skis parallel – double pole, then step with the inside ski and bring the outside ski parallel. Repeat. Be sure to practice each direction an equal amount.
- e. Figure-8s. Like circles except skiers go in a figure 8 instead, switching directions as they complete one revolution of their circle. Begin without poles and then progress to using poles.
- f. Flat S-turns. This is a great drill for progressing to effective weight transfer in skating as the skier is required to turn left, then right, then left with only a few turn steps in between (skating is essentially step turning left one step, then right one step, then left one step, then right one step). Encourage skiers to develop a rhythm where they are ‘skipping’ from ski to ski. For beginners it can be helpful to use a few cones or other marks to define a smooth arc through the turn as they are more likely to ski directly at the apex of the turn and then force too tight a turn to maintain – let alone build – their momentum. Begin without poles and then progress to using poles.

Other ideas:

- g. Obstacle course. Incorporate step turns in an obstacle course as gradual turns or circles.
6. **No-pole skate.** A good athletic position and step turning skills are important precursors to good skating without poles. See above for how to reinforce these habits.
- a. Minson’s last dance. Start in a good body position with the skis placed **on edge** in a ‘V.’ (Important the skier starts with the skis on edge!). With hands placed on hips or behind the back, the skier then drops into a low position by bending the joints of their legs. From here the skier subtly lets their weight shift forward on their foot while keep their heel in contact with the ski. As the skier does this, the skis should start to magically move forward. (NB! In Fairbanks with our cold slow snow, this sometimes requires a slight downhill for this to work!) Once a skier gets a feeling for this position, they can start to gently shift their body weight from ski to ski in a skating stride. Start with ‘no push’ and help the skier to feel for this position where they gain free glide! Once the skier starts to gain a feeling for this, they can slowly

add power to the push-off. Once they get a sense of the push-off the skier can start to swing their arms in time with the motion to enhance the skate push-off.

Other ideas:

- a. Games and obstacle courses without poles are the most fun, varied and productive ways to reinforce no-pole skating.
 - b. Advanced skiers looking for a balance challenge should try skating backwards – placing their tails farther apart than their tips and gliding backwards while pushing-off laterally. A very gradual downhill is usually best for starting this as it is difficult to get a smooth glide just starting out, while too steep a downhill can be too difficult and potentially dangerous as it is easy for the skier to lose control.
7. **Herringbone Skate.** This is the easiest uphill skate technique, and a good strategy for getting up long or steep hills. Skiers start in a herring bone but allow their ski to glide and pushes with the opposite pole to assist their forward momentum. It can be a great coordination exercise on the flats especially when done quickly such as in a relay or just for fun
8. **V1.** The V-1 skate is characterized by a 3-1 timing cycle where two poles and one ski plant simultaneously on the snow. The pole on the same side as the ski that is placed on the snow (the 'hang pole') is held in a normal position while the other pole (the 'push pole') is held somewhat lower and angled to the side so the pole is planted outside of the skis. Once the basic timing has been learned, one of the most challenging aspects of the V1 is learning to use both legs equally. We recommend teaching this through the 'learn by doing' methodology and a good demonstration first. Connections can be made to the Herring bone skate by dropping a pole and moving the arms in synch.

Other drills:

- a. One pole drills. If skiers are struggling to get a feel for timing it can be helpful to use just the hang pole and swing the push pole arm naturally. Some skiers connect better with the hang pole and some better with the push pole when learning this technique – try both with your group to help them learn the skills.
- b. The 'saddle stance' drill has the skier imagine they are riding a horse and helps them to learn the proper wide leg stance and good lateral weight transfer that is essential for an effective V1, instead of simply bringing their legs towards the center line and failing to shift their weight from side to side. A pair of 20- or 30-foot lines or other markers in the snow that are 2- to 3-feet apart (for an adult) or starting at 2- and progressing to 3-feet apart can be a great kinesthetic aid for skiers to learn to place their legs wide. Skiers should simply be instructed to land with the ball of their foot on each line. (Tip: with certain age groups, calling this the 'sumo' stance can both help them laugh and get them thinking about being in a strong body position to resist a 400 lb wrestler bearing down on them!)

- c. The 'Hot-feet' drill – As in the classical version, the skier imagines he or she is skiing on coals and has to keep their feet on the ground for as short a time as possible. It is often most effective with the saddle stance drill. To move quickly, the skier has to be in a good body position with their weight over the middle of the foot instead of 'sitting' with their weight on their heels.
- d. Knee touch drill - more advanced skiers, can be challenged to use their free arm to touch the knee of their gliding ski at the same time as they plant that ski and their hang pole – this helps develop better weight transfer to the side of the hang pole.
- e. A more advanced variation has the skier hop to the poling side while also touching their knee.
- f. The 'hammer pole' drill is another variation of the 1 pole drill and has the skier place the push pole hand on top of the hang pole and help push down for the first part of the V1 poling motion, before releasing the pole as it comes towards the hip and then placing the hand on the top of the pole again.
- g. A hop back to the poling side in the 'hammer pole' drill adds an additional level of complexity.

Orange (8-9 yrs old 3rd & 4th Grade) – Classic and Skate

1. **Classical Stride** – see above for details. This is a great starting skill to get skiers back in the mode at the beginning of the season.
2. **Kick Double Pole.** The kick double pole is a combination of a stride and a double pole. It also incorporates a two-arm swing simultaneous with the kick to develop forward momentum.
 - a. Scooter progression. In the scooter progression, a skier uses only one ski in a series of drills and a scootering motion with the other foot to develop a feel for the kick double pole.
 - Basic scooter. The skier takes off one ski and both poles and pushes him or herself along, gliding on one ski as they go. A fun variation can have skiers hold one or both poles sideways as if they are the handlebars of their scooter – once initial balance has been established, this helps the skier be in a stable, effective position. Be sure to practice on both feet.
 - Scooter with arm-swing. Now the skier uses a forward swing of both arms simultaneously as they push off the ground with their foot to develop a feel for the arms and kick (push off) working with each other to create forward momentum. It is important the skier starts the kicking motion with the hands behind their body and swings them forward as they simultaneously push with their foot. The skier can then practice riding the ski with both arms and the kicking foot extended as in a kick-double pole extended position. Be sure to practice on both feet.
 - Scooter with poles. The skier now puts their poles on and uses them as they would in a kick double pole. After they perform the kick and arm-swing,

they pole with both poles and glide on the one ski, before repeating the simultaneous kick and swing and remainder of the cycle. Be sure to practice on both feet.

- Kick double pole. The skier now puts on both skis and performs a normal kick double pole. It is important to remember to kick with alternate feet each cycle.

Other Drills to play with:

- b. No-pole KDP. As the name suggests, this is simply a kick double pole without poles. By taking away the poles, this drill places an emphasis on an effective use of the legs and good timing with the arm-swing. You may need a slight downhill to do this effectively the first time, or in slow conditions.
 - c. Locked and Loaded KDP. As with the locked and loaded double pole, this drill locks the arms in a high starting position and then has the skier accentuate a sharp abdominal crunch to initiate the poling motion. With the Kick Double Pole version, the lack of an arm swing in this drill emphasizes a snappy kick with the legs.
3. **V1** – see above for more details.
4. **V2** – The V2 skate is used generally on flats and gradual uphill. The timing follows a 2-1-2-1 pattern where the skier plants both poles while gliding on one ski and then pushes onto the other ski, plants both poles and pushes back to the first ski. Good balance and the ability to commit to a ski is crucial for feeling comfortable in the V2. Step turn drills can be very effective at tuning up the body for learning V2.
 - a. Double pole into V2. We suggest teaching a V2 by having the skier start by double poling. As you gain speed, begin to create a 'V' with your skis and shift your weight side to side by stepping from ski to ski. Shift more and more, and create more of a skate push-off as you go.
5. **V2 Alternate** – The V2 alternate is the fastest skating gear where a skier is still using their poles. The skier skates from ski to ski using their poles on only one side, before swinging their arms forward and skating back to the first side. The timing is 2-1-1 or pole-skate-skate. Those skiers with a better V2 alternate will not only use their poles effectively, but also use their forward arm-swing in conjunction with their push-off on the non-poling side to gain forward momentum. The timing of this arm-swing is critical; it is often helpful for skiers to say 'kick' to themselves as their hands swing past the hips to help initiate the kick. This can be done both as the hands swing forward and push backward.
6. **Downhill Tuck** – The downhill tuck is the best way to keep your speed up on downhills. The skier brings their hands up by their face (good for keeping face and nose warm in the cold!) and tucks their poles under their arms. Elbows are rested on top of bent knees and the back is kept flat.
7. **Skid Turn or Parallel Turn** – When there is not enough time for a skier to make a step turn, or when a skier wants to reduce speed while turning they can use a skid turn or parallel turn. Like the name suggests the skier uses a skid to turn their skis. This is a natural

extension of the snowplow - instead of sliding on one ski, slide with the skis parallel - and really something that may be learned well in advance of this point.

- a. Tight Slalom. A tight slalom course or a human slalom can also be used to reinforce this drill.

Purple (9-11 yrs old 5th & 6th Grade) – Classic and Skate

PRIMARY SKILLS – see above for descriptions.

1. Diagonal Stride
2. Double Pole
3. Kick Double Pole
4. No-pole Skate
5. V1
6. V2
7. V2 alternate
8. Skid Turn
9. Hockey Stop – this is essentially a skid turn where the skier places the skis fully sideways and skids to a stop.
 - a. Games. Games of tag or ball sports on skis often require a skier to change directions quickly. A great way to naturally reinforce the hockey stop, and a lot of fun besides!
 - b. Cone relay. This is a short relay around a cone maybe 20 meters from the start line. Skiers will sprint to the cone, throw their skis sideways to stop and skid around the cone and then sprint back.

Red (11-14 yrs old 7th & 8th Grade) – Classic and Skate

At this point in a skier's career they should hopefully have been exposed to a wide range of skills. However it is often the fundamentals that are lacking even in skiers that have reached a very high level which is well beyond the realm of the junior Nordics program. As such, coaches are encouraged to continue reinforcing some of the basic techniques and watching for any gaps or deficiencies in a skier's skill set and filling those in as needed.

Skills for Review:

Classic

1. No-pole
2. Herring bone
3. Diagonal Stride
4. Kick Double Pole
5. Double Pole

Skate

1. No-pole skate
2. Herring bone skate
3. V1
4. V2
5. V2 alternate
6. Tuck skate/Free skate

Downhill/Turning techniques

1. Sidestep
2. Snowplow (including turning and stopping)

3. Step/Skate Turn
4. Skid Turn/Hockey Stop

5. Telemark Turn

A Few Final Words

Coaching is all about making connections. That includes linking skills to one another, but most importantly it means creating a connection with the skiers one is working with. This is often a matter of using the assets of one's individual personality connect and interact with skiers in a manner that is uniquely their own. Watch, listen, get out there and enjoy yourself!

Finally, **Thank you** for taking the time to read this manual! NSCF activities and benefits are accomplished through the time and energy of a dedicated and active group of volunteers. Thank you for your time and commitment to making this sport special for the youngest members of our ski community!

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