Meadows Race Team

Curriculum provided by John Rust

Fundamentals Of Alpine Skiing

This sample plan is designed to take place over a five day or longer period. It provides an excellent basis to initiate, develop, hone, or fine tune racing skills in students of all ages. The curriculum blends skiing skills, techniques, course tactics, and movement analysis. The successful student will significantly improve their skiing ability as well as their ability to navigate a race course and improve their time. The successful coach will guide students to quickly to success and help them become focused and motivated to improve.

Progressions:
Progression is a movement or development towards a destination. Some of the parts have constants so elements should both be related and build on the corresponding parts of each other.

Generally:
Progressions should go from Gross Motor to Fine
Progressions should go from simple to complex
Progressions should be done at slower speed and then at faster speeds. There might be some exceptions to this.
Progressions of knowledge should go from basics to technical concepts.
Progressions should be season long, month long, weekly, and daily. Parts of the day might even be broken down even further. Parts should build on other parts with a goal in mind.
Progressing is the art of continuing to improve. Athletes who improve and see measurable progress are engaged, excited and retained for more progress.
Teach generally and coach with specificity

A great progression will allow the core of your group to develop quickly, without wasted time and make learning efficient and fun. There is no amount of time that can make up for years of coaching experience; however, once you see how the parts you have learned fit into a bigger picture you will be able to utilize everything you have ever learned to help athletes along the

path of learning. When athletes can see where you are leading them, are finding success along the way and start to see how the skills they are learning fit into a bigger and more complex sport they will buy in and work hard. Athletes who buy in progress more quickly and you start a snowball with them wanting more. You first have to figure this out and the framework provided will allow you quick successes in teaching the FUNdamentals of the sport.

Skill Progressions Example: If you have a group of kids and you are teaching a hop turn and they can basically do the drill you might challenge them to a more difficult task. If the athletes in your group are unsuccessful with hop turns first ask – are they athletic enough yet for this skill – if yes then build a progression that gets them to mastery. For a hop turn think of a 3-4 step skill progression to help an athlete learn the skill.

There are many ways to organize teaching progressions for ski racing. In my 30 years of coaching here are a few that I have learned with practice.

1. Start by teaching the kids the fundamentals of skiing. Teaching fundamentals means the student/athlete can understand, explain, and show you the elements they have learned. The Fundamentals will be cover more thoroughly in this document but quickly they are Stance/Balance, Pressure, Rotary and Edging. Mastering the fundamentals of the sport allows an athlete to adapt and change with the sport and adapt to skis with more/less sidecut, skis with less/more rocker, stiffer or softer skis, longer/shorter skis and the list continues, the next generation of skis and in an evolving sport. Coaches can say “try a little more or less pivot or you need more/less edge angle at the apex of the turn and the athlete will know exactly what you are talking about and perform the skill. (For all learners including youth as young as 5, firmly understanding the fundamentals of the sport will help them understand you as a coach, help them understand other coaches and make sense out of the reinforcement and direction you provide. This knowledge will drive an athlete to continue to master and refine the fundamental elements of the sport that are weaknesses to them. Understanding and education on fundamentals needs to start from the U8 level in all programs. Don’t assume your athletes know terms and information. Remind them and/or teach them.
2. Stance and Balance First and Foremost. Bottom of the turn to the top of the turn. Personally I work on the bottom of the turn first and then progress to the top of the turn. I see the common aspects of turns on the steep with pivot and one on the flats without any pivot as having the same elements in the bottom of the turn which is a clean “platform” (solid stance) meaning a ski that does not slide in the snow. Stance and traverse drills point you this direction and this is why I start at the bottom of the turn and work into the top of the turn for my progressions. The biggest factor for success is to

have a plan and implement it in a fashion that makes sense and has components that build on each other. Starting at the top of the turn for GS and going from the bottom up in SL is another effective methodology for organizing a skill progression for these two types of turns. With slightly older kids I have had a lot of luck teaching GS this way. NOTE: A frequent question is how much weight do I put on my inside versus my outside ski. The answer is if tucking 50/50 and if on steep icy terrain 100/0 Outside to inside ski. The answer depends on the situational tactics. steep versus flats (share weight on flats if possible), ice (outside ski more) versus soft snow, turn shape (bigger turns more outside), amount of angulation (in extreme angulation the inside ski and foot are limited in ability to keep angulating) and finally top of the turn (outside ski because there is not enough energy available to carve both) versus the bottom of the turn (minimizing pressure to increase speed - increase pressure decreases speed so sharing weight in the acceleration phase of the turn decreases the corresponding decrease in speed affiliated with increased pressure). Finally, the targets for stance width for children are considerably narrower than most people can see. They have little hips and stance width is a function of the size of their bodies. Its narrower than you think!

3. Little kids - this is what I worked on with my kids almost exclusively:
   Stand Tall (hips over feet) - Feet Together (narrow stance - direct parallel) - Squish Bugs (bend the ankles) - Keep it simple, direct and repetitive. Tell them what to do!
4. Start at the feet and work your way up. All coaching needs to occur from the snow up. If you start coaching hands – you'll have missed too many areas that have a bigger and more lasting impact on the development of the skier. This can be reversed, for instance in my SL progression I prefer to teach upper body down to lower, but this is only after I have done a solid progression teaching the fundamentals and Stance /Balance. Must have a good reason to work the upper before the lower. With kids work from the feet up. When you analyze skills look at the stance you worked on and go snow up. When you talk with another coach about a kids skiing start ground up. They will know you feel each step is completed. If they think you missed a step they can redirect you back to the previous step in the progression and maybe to something you did not see or another methodology for teaching that segment. Example: I see diverging skis at the end of the turn. Parallel skis are a absolute target. If they are not parallel you can ask the athlete to make them parallel. If that does not work perhaps correcting the inside ankle flexion will work, maybe the issue is the direction the inside leg is facing, maybe it's the hip needing to be more forward in relation to the inside foot. If you correct all those issues – you'll hit the root of the issue and likely correct the hands in the process.

Foundational elements to developing the well-rounded alpine skier include many components. These tools include:

- free skiing
- directed free skiing
- skills and athleticism development on skis
- drills aimed at improving specifics in technique
- Tactics
- gates

Coaching for 15 years with a new group of kids every week for 14 weeks a summer I developed an approach of a “Season in a Day ™ progression. This allows a skilled coach to cover a variety of components each day and cover the critical elements necessary to develop the athlete. Each part of the day is used to build skills in the other parts of the day. If a core element like “Stance and Balance” are being taught, they are covered during all parts of the day. Terrain and situations are varied to challenge the athletes and build the acquisition of skills and skill mastery. The day might also include a segment of gate training or gate drills to challenge or help an athlete learn a skill more quickly. Pole plant can be taught more quickly using gates and brushes than in any other manner. Gates and training scenarios including gates should not be an end goal, but one of the tools a coach uses to develop skills. Finally, don’t cover too much in one day. Better to cover less and have athletes understanding and performing the tasks with a high level of precision, great understanding and to go home with a feeling they accomplished and learned something and maybe even started to master it!

Sample Daily Training Plan:

8:40-8:55 Warm-up on snow
9:00-9:30 AM - Warm up run or 2, followed by 2-3 drill runs with target skills
9:30-10:15 AM - Skills based Gate Drills
10:15-11:00 AM - Gate Segment #1 - Skill Building/tactics in gates (50% - 85% speed)
11:00-11:40 AM - Lunch
11:40 AM-12:00 PM - Warm up on snow
12:00-1:15 - Gate training (bell curve 2 runs @ 75%, 2 @ 80-85% to 2-4 @ 100% and then taper to 70-85% for 2 runs working on fundamentals)
1:15-2:00 PM Free skiing & focused free skiing

Covering different skill levels is easy. Athletes are all working on the same concepts, but the level of refinement and precision is increased as an athlete shows mastery. If an athlete cannot keep skis parallel they will continue to work on this concept. Remember the previous example? Master the next component working your way up from the snow. Fix the issue by adjusting each body part from the snow up.

Additionally, during skill acquisition control over speed is employed during the learning phases to enhance technical development while still being able to apply the techniques to gates and other training situations. The bulleted items below are all covered; however, a younger athlete might have a coach dedicate more time to directed free skiing and skills and drills; whereas, a U16 athlete may be challenged with more situational training using gates and race scenarios. All training days regardless of age and training block should include all elements. Race days should include all elements to ensure a proper race prep routine.

- (1)Free Skiing/Directed Free Skiing
- (2)Technique
- (3)Drills and Skills
- (4)Tactics
- (5)Run Gates

Movement Analysis based on digital video recording of a selected group of the above are ideally conducted twice/once per day. The videos are reviewed in time for the athlete to make adjustments identified interactively during Movement Analysis sessions. Movement analysis sessions progress from Coach-centric to Student-centric analysis, i.e. as the student understanding progresses, the students perform increasingly sophisticated self-analysis. The intent is for the student to gain the skills necessary to analyze their progress and make appropriate adjustments over time. This can happen from an early age (5) with a focus on simple techniques and positions – athletes need to know their targets. Adapt skills or drills to work for kids. Make video fun and do not put too much pressure on the athletes. They will get the point.

Important things to do and cover to be a great coach:

1. Connect with athletes – Names should be learned within one hour of meeting the students. Next ask them what they want to learn, establish what you will teach by telling them “today I am going to teach (ex. “the basic athletic skiing stance”) – be clear and specific – see below, use video to establish connection with the student. Watch them ski in a variety of situations. Start to develop a plan and see skills that most of the athletes need to cover first. The connection helps develop trust so individual can “understand”, which means they can perform specific tasks as stated, demonstrated, or shown physically.
2. Be honest with your athletes in a fair and non-demeaning manner. If they are not performing a skill and you reward them you will be reinforcing an undesirable skill. You can tell them I saw 10% of what I need to see – let’s make it 20% better through more

exaggerated movements. 10% is a complement, but you are telling them you expect more. Perhaps if your athlete does not understand what you are saying – then you might not be saying it in a way that is understandable and you need to change your approach or methodology for conveying what you are saying. Maybe you have a learner that needs to have the skill taught in a different learning style.

3. Learning Styles need to be considered and varied for each athlete and their best one used the most often. Visual learners, Auditory learners, kinesthetic learners, and some who learn by reading and writing– adjust your delivery to cover a wide variety of learning styles. How would you use these to teach stance?
4. Set the ground rules for how you function in a group scenario. Work line-up organization, how long they should wait between skiers, how to look up hill for safety. Coaching might involve individual instruction and correction – longer time on each athlete, quick tip and go – middle of the road – keep them moving, and lots of movement and less correction – this gives athletes lots of reps to improve. Generally, initially you might give them more direction then keep them moving with an occasional adjustment.
5. Give all athletes equal attention – be fair – ask them to wait or tell them it's your turn to work with someone else. Have athletes pair up and work a drill together – they will be able to give each other feedback. Pair a stronger and weaker skier for a lead follow drill. Pair the better ones and work with the weaker skiers. One day I was teaching single ski skiing and worked with the slowest athlete while the others lapped us – each lap I gave them a challenge skill. By the end of the day the weakest skier had gotten it and was caught up to the group. The fast kids were ecstatic to not have to wait!
6. Allow each athlete to be excellent at one thing in a weekend. Have them be the example for that skill. This might include something off subject. For instance, one of my weakest technical skiers was my bravest. A set up a situation to have him lead us in jumping to push the other kids. This allowed a strong reward. All teachers need to know when to change up the group dynamics and leadership to challenge the athletes.
7. Fundamentals of Alpine Skiing - Balance/Stance, Pressure, Rotation, Edging (B.P.R.E.) and build a skill progression that starts with stance and balance goes into pressure, then rotary, and allows edging to be perfected as the balance and movement will allow it to be taken to a higher degree). Basic fundamentals of all Alpine Skiing. PSIA based – proven over time and very simple. All kids should know these terms before they are age 6 or within one year of starting on the race team.

Evaluating Skills and Giving Direction on Desired Techniques

- Evaluate skiing ability – skills assessment – evaluate using BPRE (if you are working on slip pivots edge release can be by pressure - extension, edging - releasing the ankles and knees, and rotary can be natural and active. (Natural - with body down the hill the

skis will naturally be released into the direction the body is facing and active is added direction change or guiding the skis through steering in the ankles, knees and femurs)

- Do drills that teach the body parts. "We are working on ankles" - try this ankle drill - the goal of the drill might be for them to learn what the ankle is not drill mastery, which could come years later.
- Fine tune to get them to free ski better, shoulders, hips, knees, feet, and skis. Start at the bottom and work up in evaluations
- Alignment is KEY. "Stance through Movement ™" Stance can be practiced initially statically, but we always move when we ski. We need to perfect our stance in a variety of conditions and varying terrain. If we take a picture at any place in a turn we will see the elements of a great stance relative to place in the turn.
- Get to end of day one with a good idea of where you can go for the week/month or next training segment or even the season.
- Check skis for tune and wax. Checking skis for sharpness and wax should be done by all coaches at all levels. Proper tuning and ski preparation is as or more important for a 5 year old as a junior athlete. Youth do not have the strength so having skis that move easily on the snow is really important to mastering skills.

Three big components to "TEACH" are:

1. Ways to turn the skis (B, P, R, E): 1. Pressure, 2. Pivot/steering, 3. Edging, and (Balance/Stance is an overlying theme that is part of all components. These skills are used in all modern skiing. The best skiers and racers will master all of these skills and be able to blend them appropriately to maximize speed and control.
2. Turn shape – should always match the goal for the day (ie: SL or GS) Start with large turns – generally Giant Slalom (20-22 meters turn gate to turn gate) at least two separate courses 10-14 gates each area needed for stopping between courses and gathering area, Safety is key don't stack courses. Must introduce turn shape and phases of the turn to have complete understanding of which aspect of the turn the athletes will be working on.
3. Phases (diagram) Initiation, Turning Phases upper (into) fall-line and lower (out of) fall line and transition/acceleration (also called end of the turn).

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USSS Fundamentals Assessment Table - We use skills to help athletes master our sport. Better if used in a progression and not randomly as a separate skill to learn.

PRIMARY SKILL	PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6
Pressure	Steps & jumps	Pole jumpers	Pole Jumpers in tuck	Straight run in wave track	Linked turns in wave track	Camel jump
Edging	Basic outside ski turns	Outside ski turns	One ski skiing	One ski skiing-lane changes	One skiing without poles	One ski skiing hourglass
Rotary	Hockey stop	Straight run to sideslip with edge set	Pivot slips	Sideslip to straight run to sideslip	Hop turns	Vertical brush quickness course
Balance	Freeski-with parallel skis	Freeski-with pole usage	Freeski-lane changes	Freeski-hourglass	Freeski-varied terrain and snow conditions	Freeski moguls in V shaped corridor

Day One – Stance/Balance Progression to Pressure

Teaching/Coaching Objectives

- Balance/Stance, Pressure, Rotation, Edging (B.P.R.E.) and build a skill progression that starts with stance and balance goes into pressure, then rotary, and allows edging to be perfected as the balance and movement will allow it to be taken to a higher degree). Basic fundamentals of all Alpine Skiing. PSIA based – proven over time and very simple. All kids should know these terms before they are age 6 or within one year of starting on the race team.
- Stance Components - Teach from the ground up starting with bottoms of the skis and feet on the body.(Skis – hip/shoulder width apart – parallel skis, feel the whole foot – with weight in middle, ankles bent, shin/boot contact, knees and hip bent, matching angles – parallel-a-gram and lower leg to upper body. Hands last – matching angles. Everyone should know this forward and back. If you want a review please ask!
- Evaluate skiing ability – skills assessment – evaluate using BPRE
- Fine tune to get them to free ski better, shoulders, hips, knees, feet, and skis. Start at the bottom and work up in evaluations
- Look at the body as a large parallel-a-gram with the sides moving together and in unison. There are a few exceptions to this that need to be noted. For instance, during extreme edging the inside leg will no longer gain edging while the outer edge continues to have a higher edge angle. This is different than a hockey player and due to the limitations of ski equipment. Our skis are not as narrow as a skate blade with the same clearance.
- Alignment is KEY. “Stance through Movement ™” Stance can be practiced initially statically, but we always move when we ski. We need to perfect our stance in a variety of conditions and varying terrain and during continuous movement.
- Get to end of day one with a good idea of where you can go for the week/month or next training segment or even the season.
- Check skis for tune and wax. This should be done by all coaches at all levels. Proper tuning and ski preparation is even more important for a 5 year old as a junior athlete. Youth do not have the strength so having skis that move easily on the snow is really important to mastering skills.

Balance and Stance with a tie into Pressure/Movement

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Drill/Activity	Description	Movement Analysis
Traverse, One Ski Traverse	Clean lines in snow, not moving up the hill, but across it.	Both left side of hip over left foot and right side of hip centered over right foot. Relaxed stance centered in the middle of the foot and appropriate angles down the hill – matching at the feet knees, hips, shoulders and hands. Inside foot should lead outside an appropriate amount – flexion should be equal on both shins. Hips (inside and outside) up over middle of the feet, appropriate leg separation, edge engagement.
Uphill Christie. Start flat and progress deeper down the hill in a fan progression.	Traverse, but movement up the hill, small, then larger	Arc, perfect balance – skis should not diverge at the end.
White Pass Turn	Roll ankles in middle of turn (fall line) then roll, move weight to inside ski, then roll ankles again in the middle of the turn. Skidding may be appropriate based on terrain.	Get hips to move across the ski. Separation

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Change where pressure in turn, bottom, middle, top	Pivot leading to carve earlier in the turn, multiple passes, with or without stubbies. Start with clean skis in the end/completion phase and then work higher into the fall-line over the course of 2-5 runs.	Looking for earlier edge engagement in the turn, first at the bottom, then the middle, finally early in the turn. Rolling the ankles and moving forward into the next turn. “C” shape turns, and a “C” shape in the body (upper body in relation to the legs),
Edge Angles – Show me the bases – Hockey stops also work, really lay on the edges	Lay into turns, Run in a straight olone and stop in a straight line (achieving this shows proper for/aft balance. Stop should have a perfect stance.	From a straight line use rotary and movement with the hips down the hill to achieve a straight line. Start at ground, must see bases, ankles bend and the body forward, feet in alignment. Pressuring the ski, especially in the bottom of the turn.
Course Tactics	Review where the best line is in a progression of gates. Vary the placement of brushes, stubbies or gates, alone or in combination.	Can they see, feel and ski the “Line”. Forward on skis, moving in the direction of the turn. Use brushes to mark the line at first, then remove in subsequent drills.
Ski Brushes to practice	Brushes placed in rhythm pattern. Ski around brushes, then stubbies, then gates.	All above, now in the start of a GS course.
Video Analysis	Once in the first half, once in the second half.	Look for components of a great stance. First look for gross position issues and then for areas of micro-adjustments.

Notes:

Day Two –Pressure Progression - Master Pressure before edging (PSIA E then P)

Teaching/Coaching Objectives

- Refine the skills learned in Day One – a perfect stance! Start with free skiing in the second morning. Make 2 runs in review of the previous day. Have kids work on their stance by themselves. Have them do track analysis for self feedback (this can be done with kids as young as age 6. Provide feedback on each successive lap, encouraging them to work on specific skills of their own weakness, you help them fine tune, on each successive run. Keep them moving.
- Continue to develop dynamic balance techniques – challenge the kids to keep their stance in a challenging situation or on challenging terrain.
- Alignment and Body position
- Identify issues in equipment. Boots are the most important part of the equipment picture.

During Day One you "Told them what to work on". In Day Two begin "teaching them to work on their own skiing", to be self-analysis aware.

Pressure:

1. Ankles – Movement needs to be focused in the ankles. Loosen boots, do what it takes to see athletes move.
2. Knees – need to bend, but not too much. Must track straight (this is not angulation but up and down)
3. Hips – need to stay over the feet.
4. Whole-body must move in unison and be smooth. Terrain is a great place to perform pressure skills.

Identify issues in equipment that need to be addressed.

Drill/Activity	Description	Movement Analysis
Traverse with Flexion/Extension	Tracks should be the same as normal traverse. Not from edge to edge	Looking for balanced full movement

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Emphasize full movement	Strong flex and full extension – both in full balance.	Watch the traverse from below – see if in balance. From the front both the knees to boot and knee to hip should shrink and grow with balance. Shorter upper leg – hips too far back. Shorter lower leg – more ankle and better.
Squish the bugs! Ages 2 to 10 this skill should be the primary focus	Constant reminding about "squishing bugs, front of the boots, Tell them what you want them to do. Be concise and specific.	Kids can flex forward with shins. This is a must area of focus. 75% of the time should be spent in this skill area.
Pole Plant	Plant the pole on the flexion of the boot. First steps is to learn to plant the pole.	Flex with pole plant and extend to the new turn. Using gates – put a brush exactly half way between the gates and have the kids plant on the brush.
Hand Clappers behind torso	Between the turns clap your hands behind your body. This will bring your hips forward.	Looking to have the belly button travel forward between the turns. Need to see movement. This can be preformed in GS gates.
Pole Jumpers	Put a pole on the ground and have the kids jump the pole between the turns.	Looking to see the skis in the jump parallel off the snow.
Hopping, Jumping or Hop Turns	Focus on moving from the ankles and to be in balance.	Jumps and landing should happen from the middle of the skis.

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Notes:

Day Three – Edge Control

Teaching/Coaching Objectives
Refine the skills learned in Day One, Day Two and Day Three. Start with free skiing. Make 2 runs in review of the previous day. Provide feedback on each successive lap, encouraging them to work on specific skills of their own weakness, you help them fine tune, on each successive run. Pick a skill they do well and one most of the group needs to improve. Coach improvements

Four types of edging are:

1. Ankles – always used especially for refinement and to feel the skis and lock them on edge
2. Knees – quicker than hips and inclination used more on the flats and in SL (quicker turns)
3. Hips - strong and used a lot in GS turns. Basically, when you turn you are holding the center of mass (hips) from going down the hill and the release gives you speed. Conversely, moving the hips to the inside gives you power/leverage to turn at high speeds. Mastering hip angulation in ski racing is extremely important.
4. Whole-body inclination -— used especially in speed events and in bumpy terrain where alignment of the body allows for absorption of rough terrain

As in all skiing, some aspects of all of these are used in each turn to varying degrees. The best skiers and racers will master all versions of these skills and be able to blend them appropriately.

Drill/Activity	Description	Movement Analysis
Dragging poles (Outside) to generate angulation.	Ski in arc, drag poles on outside of turn Angulation vs. Inclination	Edges – see the bottoms of the skis, ok if just banked turns at this point; feel “pop” of skis on turn exit.

Dragging hand to the inside builds feeling of inclination, angulation if hands are far enough toward the tips of the skis – see what the edges can do.	Inclination vs. Angulation, Touch the snow on the inside of the turn with your hand.	Now same feeling, but with angulation instead of inclination. Body forward into the turn, not dragging hand behind.
Push on hip in various positions to see where strongest.	Partner up. Practice angulation vs, inclination and see the difference in force required to move a person off balance.	Much stronger in balance Look for ankles bent and contact in the cuff of the boot from shin – especially downhill ski first and then inside ski.
Drag your partners over and across the hill. Make sure they maintain shin contact on the outside boot cuff. Inside ski alignment is extremely important.	Ski across the hill in a traverse, downhill person holing hands of uphill skier. Uphill angulation as far into the hill as possible.	How far can you lean (body position), how to be strong, edge engagement and how far you can pressure the edges without them skidding in the snow. .
Run GS Gates	Easy separation at first, reset and make more challenging	Determine appropriate line through the gates over varying terrain. Look for proper edge engagement. The duration, intensity, rate and timing of engagement in the turn are all critical components. Look for edge “grip” at the end of the turn. Then progress to encourage engagement uphill higher into the turn.

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Poles in front and back of mid section. The poles provide an excellent indication of hip alignment in all three planes. X, Y, and Z. The poles act as a pointer. This is a hip alignment drill.	Place one pole behind your back and the other pole in front of your waist. **Make sure they are lower down over the hip bones so the poles show the position of the hips.** Invert the poles so that one tip is in alignment with the other basket. Place straps around opposite pole tip. The poles elongate the waist and provide immediate identification of positioning of the mid section in a turn – in three dimensions.	Compass or Barometer of where the hips are in relation to the rest of the body. All three axis; level, for or aft, and rotation. Alignment, see clearly where hips are pointing. Hip alignment should be the same as the amount of the inside ski lead. **Additionally, the inside leg should be aligned with the hip knee and ankle in a straight line – inside knee should NOT roll to the inside further than the hip – the knee should come up into the area of the shoulder. This allows the hip to remain strong and prevents the inside boot from booting out.
Edge Angles – Show me the bases – Hockey stops also work, really lay on the edges	Lay into turns, Run in a straight olone and stop in a straight line (achieving this shows proper for/aft balance. Stop should have a perfect stance.	From a straight line use rotary and movement with the hips down the hill to achieve a straight line. Start at ground, must see bases, ankles bend and the body forward, feet in alignment. Pressuring the ski, especially in the bottom of the turn.
Brushes between turns. “Timing of movement” End of turn and transition/ taking the movement in the new turn.	Use a combination of stubbies and brushes or just brushes to mark the line around the gates. Skid the turns first in the top ½ then work to progressively move “initiation” or edging initiation earlier in the turn.	Round out turns and ski an appropriate/fast line. Lean to see and feel the line.

Brushes below the gate to emphasize locking the skis on edge	Place brushes in appropriate position based on what you want them to do (around or between) and the skill level of the athletes	Force you to stay inside the brush and lock the skis on edge
Video Analysis	Once in the first half, once in the second half.	This is the chance for the athlete and the coach to see and agree on the same things. Until athlete and the coach are talking and communication about the skiing skills with an accurate assessment growth (ie. change) will be very difficult.

Notes:

Day Four – Rotary Control

Teaching/Coaching Objectives

- Refine the skills learned in Day One and Day Two. Start with free skiing in the second morning. Make 2 runs in review of the previous day. Provide feedback on each successive lap, encouraging them to work on specific skills of their own weakness, you help them fine tune, on each successive run.
- Continue to develop dynamic balance technique – get the athletes moving.
- Alignment and Body position – continue to refine and hit the skill that needs the most improvement.
- There are two major types of steering or rotary effects on our skis.
    - Natural Steering - this is a function of the body alignment down the hill. In SL we face down the hill. GS too, but not as much. At the ski release the skis will naturally face or align with the direction of the body.
    - Active Steering - this happens many ways and in different situations. You cannot work on steering or rotary unless you have covered pressure (flexion/extension) and edging (releasing the skis), as to guide the skis they need to be lighter on the snow surface generally. Active Steering comes from the ankles, knees and femurs.

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Rotary Skill Progression:

Drill/Activity	Description	Movement Analysis
Corridor slips then Corridor Pivot slips	Skis across (90degrees) the fall line, release edges to initiate a slide down the fall line. Slide down the fall line within a corridor, one groomer width. During the slide, pivot the skis 180 degrees, keeping the skis parallel. You should not ski forward or backward but straight down the fall line. Repeat in a “complex” fall line.	Balance stay in corridor – requires fore/aft balance. If sliding forward, either the skis are not kept perpendicular to the fall line – the tips are pointing down the hill slightly - or the student is sitting back. If sliding backward, the skis are again not parallel to the fall line – tails pointed down the hill – or the student’s balance is too far forward.
Pivot Slips with Pole Plant, and edge lock “ Then progress to “Edge Lock”	Same as above, but add a pole plant to the pivot and edge lock – a slight hockey stop – during the slide.	Flatten ski to initiate turn by moving hips and body perpendicular to the slope of the hill. Skis should pivot together.
Double Pole plant in turn Downhill	When turning the skis, initiate the turn by placing BOTH poles to the turn side of the body just prior to initiation. This forces the upper body to move forward and into the direction of the turn.	Move into the turn with turning shoulders and hips. Rotary skills should be performed with upper and lower body separation. Shoulders should stay down the hill while lower body crossed the fallline.

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Falling Leaf	Begin in a pivot slip. Move forward and backward while sliding down the hill, pivoting the skis to create a “falling leaf” pattern on the snow. Back pressure should create forward movement, forward pressure should create backward movement, unless you pivot skis, then the opposite occurs.	Skill of edging and not edging, both are important, flat skis Very hard to do this correctly as moving body back can produce wither forward or backward movement.
Quick feet through the brushes (this can be done sideways too)	Brushes 3-5 meters in line, quickly edge the skis from side to side to ski around the brushes. Use both skis, then try each ski individually.	Rolling the ankles to navigate the brushes. Very quick feet. Skis should not pivot during this maneuver. The closer the brushes, the faster the required movement of the ankles and feet.
Pole plants in stubbies, brushes, tall gates.	Plant poles in turns through the established course.	Timing and location of pole plant
Full rhythm course, without blocking	Old School skiing	Rhythm of turns
Poles cross to block gate, continue to build speed.	Hold poles in both hands in front of you, block gate, center of mass should pass through the plane of the gate.	Not push at gate, hands steady, keep building speed.
Single Block - Poles and stubbies	One side of course with stubbies, one side with Gates, Pole plant on one side, block on other;	Timing and location of pole plant, avoid “dropping inside hand which can cause rotary movements. Should be one movement from block to pole plant

Introduce combination	Hair pins and flushes, set up a few gates before a flush, then the flush. Block with the same hand, figure out which way (hand) to use to block the flush. Pole plant in non-flush gates.	Set up for last gate and turn to make move across to turn gate – avoid going too straight in flush to make turn in last gate
Double combo drill	ALT. 1 - Add other colored brushes to gates above flush and below the flush, pole plant at the brush.	Pole plant should be executed properly. Correct hand used to block the gates in the flush.
	ALT. 2 - Brushes, stubbies, gates, then afternoon, brushes, long pole rhythm, long pole combo	Culmination of all the skills. Use analysis from the bottom up – skis, feet, ankles, boots, knees, hips, torso, shoulders, head, hands.
Video Analysis	Once in the first half, once in the second half.	Correct pole plant in the exit/ eyes inside of the last gate.

- Notes:

Day Five (or do a 4 day SL progression) - Slalom Progression

Objectives

- Master the skills of SL
- Introduction to slalom course
- Understand role of pole plant for timing and blocking slalom gate

SL Skills Based Teaching Progressions - Bottom of the Turn Up Skill Building

- ❏ Side Slip in Corridor
- ❏ Side Slipping with Pivots
- ❏ Side Slipping with Pivots and Edge Sets
- ❏ Side Slip with Pivots, Edge Sets and Pole Plants

- ❏ Wedge Hops
- ❏ Hop Turns
- ❏ Changing Edge Hop Turns
- ❏ Norwegian Pole Plant Turns
- ❏ Dynamic Short Radius Turns
- ❏ Visual Acuity Drill III (Changing Lanes)
- ❏ Picket Fence
- ❏ Inside Arm Flush
- ❏ Slalom Gates with Pole Plant

*Critical Note:
Pole Plant in Slalom - It is imperative that athletes master both and first a “Blocking Pole Plant” with is the base fundamental and used on icy and steep terrain and an “Accelerating Pole Plant” which is used on flatter terrain. A blocking pole plant occurs simultaneously with the bottom of the ankle flexion and is used to help get the athlete from one turn to the next both in timing and support. The pole plant also serves as a help in the function of leveling the shoulders and maximizing stability over the outside ski. An accelerating pole plant happens just prior to the skis going flat between turns and helps avoid over edging while maximizing timing and tempo. All athletes need to master both and situational tactics and combos may deemphasize the use of a pole plant in certain situations.

Slalom Courses:

Slalom (9- 12 meters) at least two separate courses 14-18 gates each area needed for stopping between courses and gathering area. Safety is key don’t stack courses. Gate progression for Slalom: Rhythm in 1) brushes, 2) stubbies, 3) short number of long poles 4-6 and then 15 – 20 gates. Finally, rhythm sections are increased and the introduction of combinations is employed.

See the Diagram for Slalom Flush progression presented below:

Diagram 1 - Flush Blocking (Single Hand)

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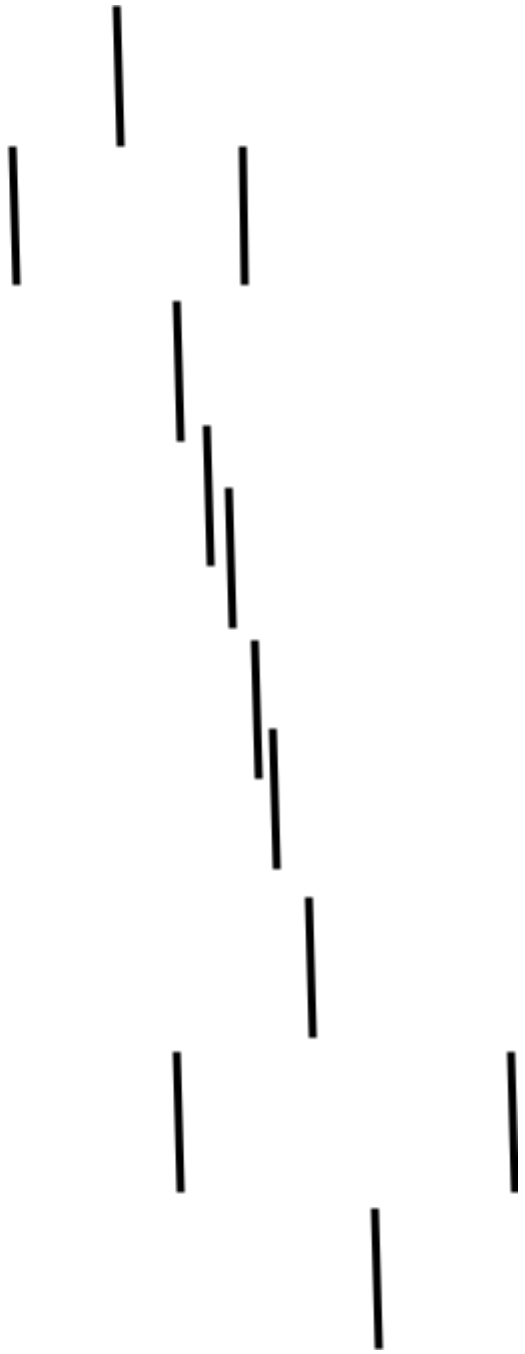
Flush Drill - Taken with Right or Left Hand depending on initial entry - Point of Emphasis is flush exit pole plant



Objectives

- Increase speed in course without diminishing technique. Usually the higher the speed technique will diminish accordingly.
- Improve timing and use of pole plants.
- Tactics - Vary turn placement based on course and terrain

Slalom (9- 12 meters) at least two separate courses 20-40 gates (building length) each area needed for stopping between courses and gathering area Safety is key – be sure not to stack courses.

Drill/Activity	Description	Movement Analysis
Brushes with pole plants - Slalom	8 rhythm brushes - can set intermediate colored brush for pole plant location.	Balance and movement toward apex of next turn with pole plant for timing of initiation, describe but avoid Blocking pole plant (end of turn)
Full gates old school style	Completely around gates	
Hop Turns	Jump to ski from edge to edge at apex of turns into the fall-line of the next turn, open terrain.	Clean edge engagement at middle of turn. Rolling ankles and moving the body forward to accomplish.
Happy Feet	Rolling ankles through a set of close brushes in a line (6-8 gates depending on terrain)	Rolling ankles, not pivoting between gates, quick feet and ankles required.
One ski happy feet	Same as above but on one foot. Weaker foot better	Agility on one ski, balance, quick edge to edge.
Cross Blocking with crossed poles	Poles crossed in front of the skier. Cross block the gates with the crossed poles	Poles in one position, gates hit middle of poles. No “boxing” or “punching” gates. Poles steady and *LEVEL*. Body forward into turn. Shins or boot tops hit poles at the bottom of the gates.

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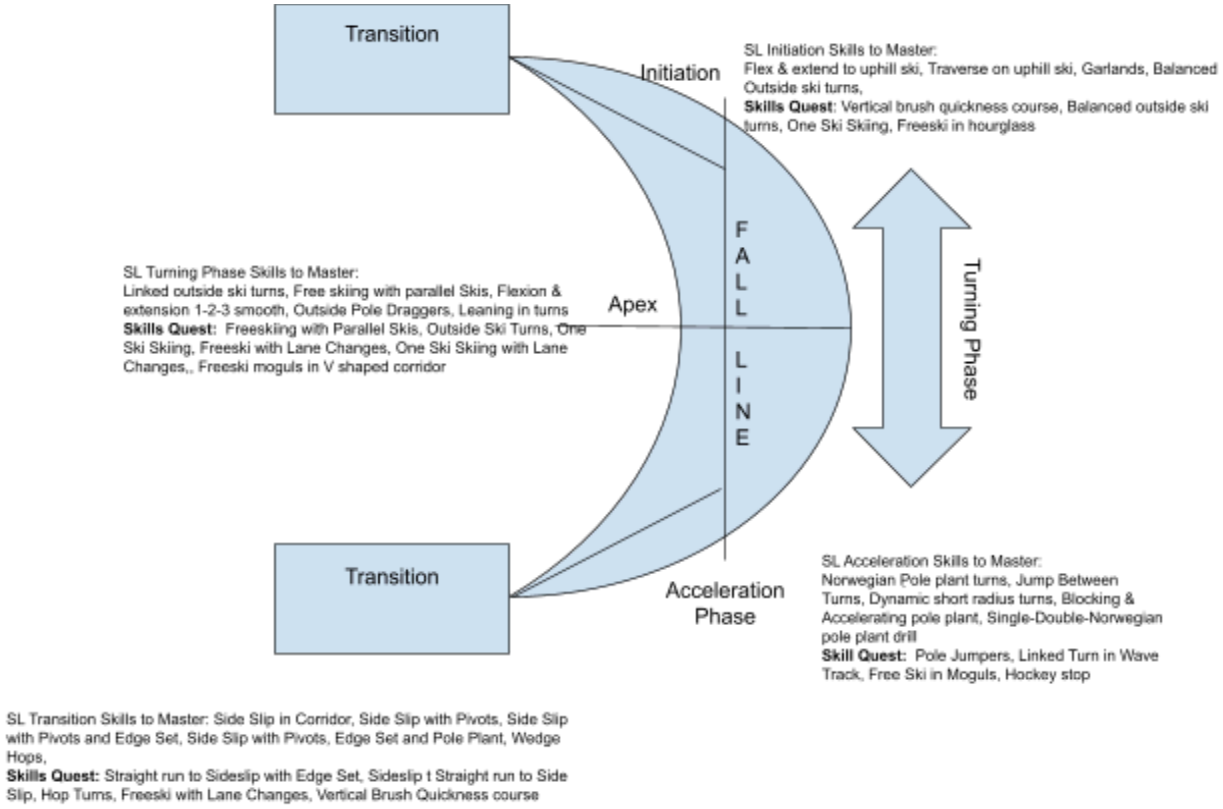
Cross blocking with a pole plant	Hold pole horizontal, Cross block gate, then plant pole with same hand in one smooth motion	Single motion to block gate and plant pole. Correct hand used to block gate.
Pressuring and edging the ski in top of fall line (earlier and earlier)	Continue to add pressure to the edges earlier in the turn.	Cleaner arc. Little snow thrown off the bottom of the skis in the turn, “C” shape to body and arc of turn.
Mix brushes on one side, with poles on other side	Practice pole plants and block gates on the same run. 4-6 poles on one side, then 4-6 poles on the other side.	Correct hand used to block gate, pole plant at transition of turn in anticipation. Flexion at pole plant to initiate the turn.
Reintroduce Combination, lead with exit hand	Build progression with brushes, stubbies, then add a single pole, several poles, etc.	All of the above
Video Analysis	Once in the first half, once in the second half.	



Notes:

Day Six (or do a 4 day GS progression) – GS Progression

Objectives

- Review skills/drills from prior 4 days
- Cement skills learned in prior days
- Provide Mileage through multiple courses to refine and cement movements/skills
- Closure to the week

GS Skills Based Teaching Progressions: Top of the Turn Down Skill Building

- ❏ Traverse
- ❏ Traverse with Flexion & Extension
- ❏ Traverse with deeper uphill Christie
- ❏ Garlands
- ❏ Balancing Traverse

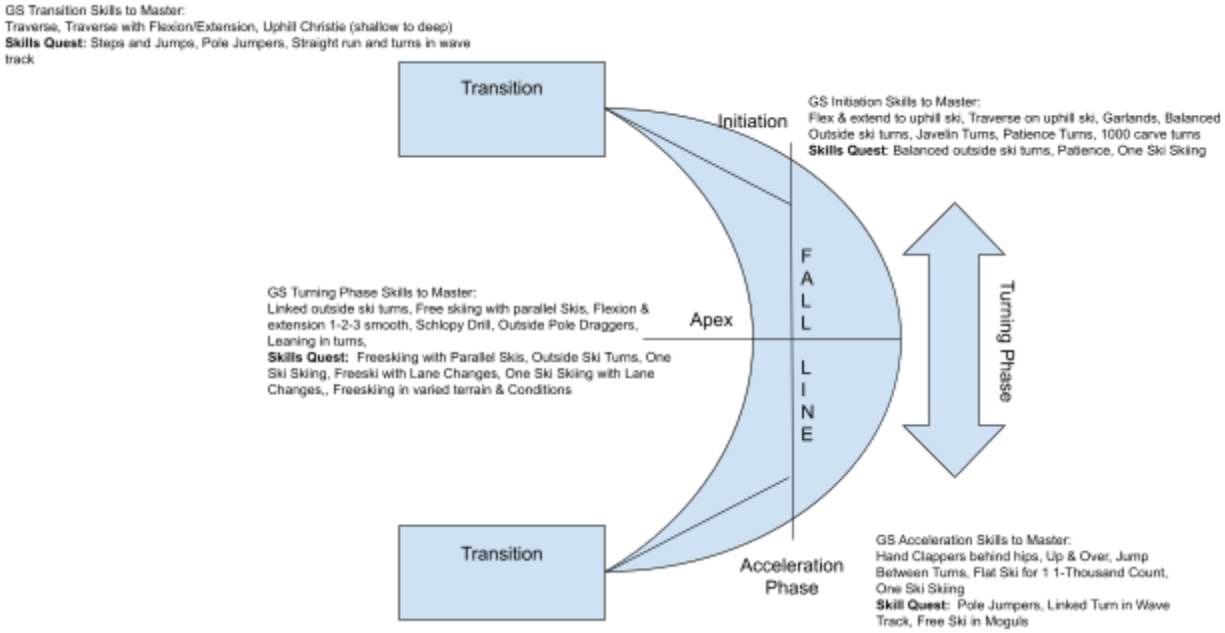
- ❏ Patience Turns (elongate transition)
- ❏ Courage Turns (stand on outside ski)
- ❏ Javelin Turns
- ❏ Linked Outside Ski Turns
- ❏ Thousand Carve (Steps) Turns
- ❏ Turns with Pole Jumpers
- ❏ Linked Parallel GS Turns
- ❏ Visual Acuity II - traffic cop (w/ coach direction)
- ❏ Spatial Awareness - visualize, mental construct, freeski hourglass/freeski lane changes,
- ❏ Linked GS Turn in Moguls

Drill/Activity	Description	Movement Analysis
Review	Review what was covered during the week. Focus on key areas – Balance, Rotation, Edging, Pressure, Techniques, Tactics, etc.	Alignment, Flexion, Extension.
Pick top three to five items for each person to focus on improving	Each person reinforces what they learned and need to work on after the end of the course. Have them free ski to show what they have learned.	Skill specific to each skier
How to turn ski – 3 ways	Pivot, Pressure, Edge the ski	Ensure the students understand all
Edging, rotation, pressure	Rhythm Session with pole plant	
	Flush Drill	
	Video combos	

MILEAGE	More repetition	
Free ski skills	Free ski along with running gates to continue to cement skills.	Getting energy back from the skis – feel the pop when free skiing in varied terrain.
Video Analysis	Once in the first half, once in the second half.	
Check back	Get the athletes to focus on “their skill” area and answer any questions	Move athletes manually if necessary to correct deficiencies in body position

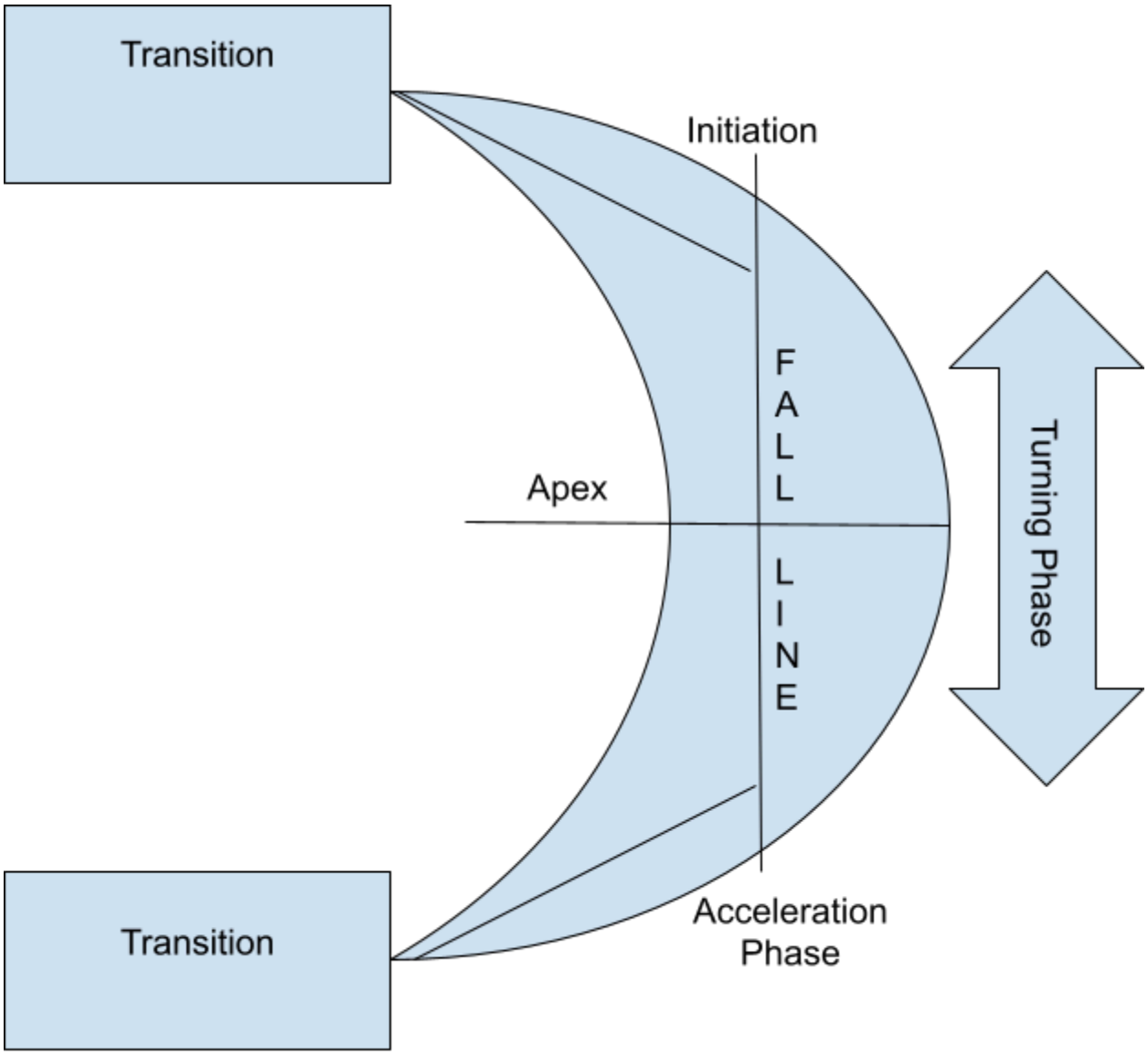
Notes:

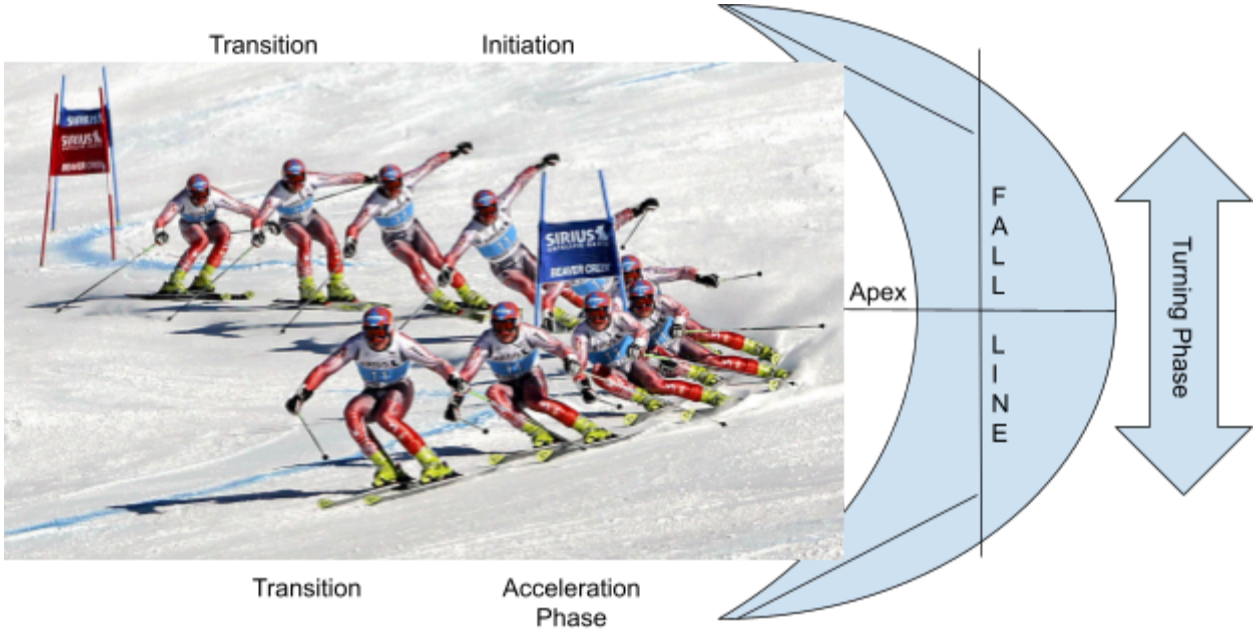
Have fun with skiing. Learning and improvement ties into this however some pressure off skiing for fun is a nice way to bring it together for the athletes.



Phases of the Turn Progressions: 1-4 Phases - Keep it Simple

- John (Initiation-Turning Phase-Acceleration)
- Others (Initiation-Turning Phase-Completion)





Stance and Balance:

- Alignment is a function of maximum angulation and stance width.
- Let's talk about the inside half of the body and particularly the inside hip/knee/angle alignment

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Concepts to weave into your core instruction over time:

Domains of Mastery and Mastery of Skiing and Racing:

Taking the fundamentals to the next level.

Please review the USSS Domains of Mastery for Alpine Ski Racing

https://usskiandsnowboard.org/sites/default/files/files-resources/files/2017-11/Alpine%20Training%20Systems%2011-16-17.pdf

At the top end of the learning curve these components are blended to achieve the highest level results possible.

As an example by age 13 athletes should be mastering the technical domain of skiing as shown by USSS. This does not mean we move on, but rather continue to brush up and work to continue mastery through any physical growth - including strength and new gear. The physical domain will go from both on and off snow to on snow and off snow mastery. If you are trying to increase conditioning during the winter months for athletes ages 13 and up the “work out” will be in the gates or in carefully scripted training scenarios which have the intended physical training goals incorporated into the skiing plan. A summer work out of 10 - 300 meter sprints - 60-65 seconds will happen on the hill and while skiing. Coaches need to be cautious not to condition too quickly as this makes the athletes more susceptible to injury and crashes, but to adequately prepare for key races the conditioning should be complete prior to those race series. While building this foundation coaches should also cover, tactics, technical skill acquisition, mental training and equipment. Equipment may become an interwoven complex aspect of a maximum performance. Testing might include ramp angles, lateral canting, and varying snow conditions and terrain for testing. While sharpness and waxing a constant and not a new to learn item.

Here are a few tenants which set up seasonal success:

1. The early season should have higher volume and lower intensity
2. Later season race prep is higher intensity and lower volume. Race the big races totally prepared and fresh for the best result possible. Some free skiing and fun for a mental relax is okay when a training session is very high intensity.
3. Conditioning and strength/balance development are done through training courses and skill based drills. Develop quickness on the skis while skiing. Visualize your summer workouts on snow and execute them.
4. Control safety by skiing in a closed venue and on a race hill. Control speed when free skiing.
5. Train the athletes on a bell curve initially, with an increase in speed and intensity to max effort runs and after tired decrease the speed and intensity so they can ski with mastery. As the key races get closer the training should match actual situations. Warm-up, Inspect - race (or race simulation) and warm down followed by free skiing.

Here is a sample camp plan for a summer or fall camp.

"Season in a Day Training" or segmented training days with each training session covering and building on a technical skill base which elevates an athletes skiing the most. We might have 28 different personalized skill sets that athletes need to master, but this is when we depart from general to specific for athletes.

- Free skiing/focused free skiing 10%
- Drills and skills (Skills Quest and progression challenges) 10%

- Tactical gate sections with helpers 15%
- Gate Training - 65% (30% quickness and reaction time, 20% very turny and 15% race tempo).

The speed they ski at in the gates will be

- 20% at 50-75% of max speed
- 40% at 75-80% of max speed
- 20% at 90% of max
- 15-20% at max speed

50-75% of the time they should be skiing in their speed suits, which can be challenging if it's bitter cold, but coaches need to cycle and carry jackets so athletes can hit their targets.

Each day starts with a bell curve. We hit that peak and then taper them off - reinforce fundamentals while maximizing conditioning on the backside of their strength curve. Every athlete will hit that curve at a different time. Stronger ones will get more runs in the higher percentages, but not too many more, just enough more. As the athletes climb that curve our intensity needs to climb and push them. As they hit max, we need to allow them the space to refine fundamentals while they are tired. These 2-3 runs every day are the ones that body (neuro muscular system) makes its autonomic memories from, but are seldom the video runs. They are the "mastery" runs. We have to demand discipline in during this part of the learning day as it may be the most important. Our intensity is rigored toward their mastery while tired.

SL Progression of Skills through gates - Rhythm, quick rhythm, turny rhythm, rhythm changes (tight and open), Combo techniques - have to make those hand movements automatic (Hairpins and right and left flushes) Courses with Combos, Courses with Rhythm Changes and combos, race simulation. Blocking techniques have to be covered as well as transitioning between different blocking techniques and low and high hand decisions. Length increases from 20 gate sections to 40 gate sections to 60 gates.

There should also be boat loads of video - 2-4 sessions a day. Some on the hill and some while off and sitting in street clothes. Athletes have to see their progress and know if they are performing specific skill sets. (pole plant, blocking techniques, turn shape, pivot-no-pivot, and where they need to increase their technical skills to increase performance)

GS has is own progression, which needs to be weaved into SG and speed. Athletes should switch disciplines often and be challenge by switching skis. Change overs will happen quickly and athletes will learn their targets for adapting rapidly.

Between fall camp and Jan. we need them to be conditioned to ski at their max speed for 60 seconds with no tactical errors due to conditioning in the last 20% of the courses. The ends of courses should have “tactical traps”. First you do not tell the athletes about them, but then you make them a challenge - tell them and see if they can still perform when tired. December is a short month with only weekend ski days. That is why fall camp so important as a conditioning through high mileage camp. Those repetitions if we demand excellence will carry them for the season. As they get stronger you will see errors start to vanish.

The SG training has to be on turn shape and pressure control as well as progressive speed mastery. We need to build them in, but this should also increase their GS speeds. SG gets the kids on straighter skis and allows us to open up the radius.

Additional concepts to teach our athletes:

Start with a complete understanding of the body and individual differences

I. The body
    A. Types and differences
        1. Feet and foot beds
        2. Fib Tib (length and shape)
        3. Relationship of knee over feet/bindings (short feet long lower leg issues)
        4. Femur (length and attachment to the hips - angle of femurs heads)
        5. Height and Weight (torso versus leg length)
        6.
II. Looking at athletes as individuals
    A. Kids
    B. Teens
    C. Adults
    D. Seniors
III. Skiing
    A. Boots
    B. Assessment and Fitting
    C. Canting theories
    D. Fore/aft alignment (ramp of plates, bindings and boots)
    E. Stance width
IV. The Basics of Skiing
V. The Skills of Skiing
VI. Progressions
VII. Tactics

VIII. Ski Tuning
IX. Health and Fitness
X. Dry Land Training
XI. Core Strengthening
XII. On-Snow Training
XIII. On-snow fitness and strength training as a function of mileage
XIV. Cross Training
XV. The Physical and Natural Laws
    A. Breathing
    B. Awareness
    C. Liquids
    D. Antioxidants
    E. Nutrition
    F. Conditioning
    G. Effective Rest/Active Rest
XVI. Training and Racing
XVII. Course Management and Technique– Slalom
XVIII. Course Management and Technique– GS
XIX. Course Management Technique– Super 11 or Super G
XX. Course Management Technique – Downhill
XXI. Special Circumstances
    A. USAA
    B. NCAA
    C. FIS
    D. World Cup
XXII. Injuries
    A. Assessment
    B. Recovery
    C. Rehabilitation
    D. Career Limiting
    E. Directory of World Class Medical Ski Practitioners
    F. The Phantom Foot
XXIII. The Finesse of Skiing – Putting the Movements Together
    A. Styles and countries
    B. John’s interpretation

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Tactics Mastery

100% above

Tactics are situationally based:
Steep - more turn above the gate
Flats - can run more direct
Youth - need to master 70/30 line first then adapt
Snow conditions - soft = rounder
Size of athlete - smaller - tighter
Terrain - many different effects and choices
Course conditions - usually earlier if rough or soft
Ability of the athlete to switch and adapt - less ability more round

50% above
50% below

100% below