Level 1 Movement Analysis Exam Criteria

L1 Movement Analysis (MA) Expectations:	**Successful candidates consistently demonstrate their ability to:**
● A L1 instructor will be able to articulate an accurate cause and effect relationship of any single skiing fundamental and ski performance, in a specific phase of the turn for skiers through the beginner zone, resulting in a relevant prescription for change.	1. Describe ski and body performance in one fundamental through one phase of the turn 2. Link ski and body performance to describe cause and effect relationships in one fundamental in one phase of the turn 3. Evaluate described performance and compare to more ideal 4. Prescribe a specific change in one fundamental 5. Observe and describe how equipment choices and issues affect performance and safety in the beginner skier zone

The above information describes the MA expectations for a L1 candidate. To help understand these expectations, an example for each assessment will be given. Refer to the Introduction to MA document for a description of ski and body performance and other useful information on MA.

Number 1: Describe the ski and body performance of one fundamental through one phase of the turn.

Alpine Fundamentals

1. Control the relationship of the Center of Mass to the base of support to direct pressure along the length of the skis.
2. Control pressure from ski to ski and direct pressure toward the outside ski.
3. Control edge angles through a combination of inclination and angulation.
4. Control the skis rotation (turning, pivoting, steering) with leg rotation, separate from the upper body.
5. Regulate the magnitude of pressure created through ski/snow interaction.

Click on the video link and watch the video:

PSIA Level 1 Movement Analysis

Use the template below to help write up what you observed (Yellow Header). We are directing you to observe during the shaping phase of the turn.

Fundamental/ Skill	Turn Phase	Ski Performance	Body Performance
	Shaping		

Check your MA from the video with the MA provided by our team of pros (Green Headers). An analysis will be provided for each of the five fundamentals during the shaping phase of the turn.

Fundamental/ Skill	Turn Phase	Ski Performance	Body Performance
#1 Controlling the CM along the length of the ski / Pressure	Shaping	Skis were in a wedge position. Pressure was aft.	Extended ankles, flexed knees and flexed hips. CM is over the heel piece.

Fundamental/ Skill	Turn Phase	Ski Performance	Body Performance
#2 Foot to foot pressure/ Pressure	Shaping	Pressure is moving towards the inside ski.	Extended ankle, extended knee and less flex in the hip of the outside leg. Extended ankle, over flexed knee and hip of the inside leg. This moves the skiers CM to the inside.

Fundamental/ Skill	Turn Phase	Ski Performance	Body Performance
#3 Edging/skill = Edging	Shaping	Outside ski has a higher edge angle and inside ski has a low edge angle.	Inclination of the upper body and outside leg causing the body to be aligned over the inside ski.

Fundamental /Skill	Turn Phase	Ski Performance	Body Performance
#4 Rotation/ Rotation	Shaping	Outside ski turns at a faster rate than the inside ski.	Upper body rotation continues through the shaping phase. The legs follow, slightly behind the upper body.

Fundamental /Skill	Turn Phase	Ski Performance	Body Performance
#5 Ski and snow interaction/ Pressure	Shaping	Minimal pressure change between the skis and the snow.	Minimal flexion and extension movements in the vertical plane coming from the knee.

Number 2: Link ski and body performance to describe cause and effect relationships in one fundamental. Pick another fundamental for this exercise that you didn't use above.

Fundamental/ Skill	Body Performance	Ski Body Performance	Outcome

Fundamental/ Skill	Body Performance (Cause)	Ski Performance (effect)	Outcome
Fundamental #1, Controlling CM along the length of the ski/Pressure	The overflexion of the knee kept the CM over the heel piece.	The full length of the ski is not engaged.	The pressure is being directed to the back of the ski.

Fundamental/ Skill	Body Performance (Cause)	Ski Performance (effect)	Outcome
Fundamental #2, Foot to foot/ Pressure	Extension of the outside leg and over flexing of joints of the inside leg.	More pressure directed to the inside ski.	Pressure is only able to be directed to the inside ski.

Fundamental/ Skill	Body Performance (Cause)	Ski Performance (effect)	Outcome
Fundamental #3, Edging/ Edging	Inclined upper body moving the CM over the inside ski and extended outside leg.	Higher edge angles of the outside ski. Inside ski has a low edge angle.	The skier is using the outside ski edge more than the inside ski edge.

Fundamental/ Skill	Body Performance (Cause)	Ski Performance (effect)	Outcome
Fundamental #4, Rotation/ Rotation	Upper body rotation is used to turn the ski.	The tail of the outside ski does not follow the tip. The ski tail tends to wash out.	Turn shape is Z like.

Fundamental/ Skill	Body Performance (Cause)	Ski Performance (effect)	Outcome
Fundamental #5, Ski and snow interaction/ Pressure	Flexion and extension movements are initiated primarily from the knees.	Minimal pressure change between the skis and the snow.	Skier is fairly static in the vertical plane.

Number 3: Evaluate described performance of one fundamental and compare to more ideal.

Fundamental/ skill	Body Performance:	Ski Performance:	Describe More Ideal Performance

Fundamental /Skill	Body Performance:	Ski Performance:	Describe More Ideal Performance
#1 Controlling CM along the length of the ski/ Pressure	The overflexion of the knee kept the CM over the heel piece.	The full length of the ski is not engaged. It is difficult to engage the tip at initiation.	Ideally we would like to see the skier be able to control their CM along the length of the ski. The lack of flex in the ankle combined with the over flexing of the knee and hip only allows the skier to bend the ski towards the tail.

Fundamental /Skill	Body Performance:	Ski Performance:	Describe More Ideal Performance
#2 Foot to foot pressure/ Pressure	Extension of the outside leg and over flexing of joints of the inside leg.	More pressure directed to the inside ski.	Ideally we would want the skier to direct pressure to the outside ski using flexion of all joints in both legs.

Fundamental /Skill	Body Performance:	Ski Performance:	Describe More Ideal Performance
#3 Edging/ Edging	Inclined upper body moving the CM over the inside ski and extended outside leg.	Only using the edges of the outside ski. Inside ski is flat.	Ideally we would like to see the skier start to edge both skis with angulation of ankles, knees, and hips.

Fundamental /Skill	Body Performance:	Ski Performance:	Describe More Ideal Performance
#4 Rotation/ Rotation	Upper body rotation is used to turn the ski.	The tail of the outside ski does not follow the tip. The ski tail tends to wash out.	Ideally having the skier turn his skis with his legs will give him more control over the shape and size of his turn.

Fundamental /Skill	Body Performance:	Ski Performance:	Describe More Ideal Performance
#5 Ski and snow interaction/ Pressure	Flexion and extension movements are initiated primarily from the knees.	Minimal pressure change between the skis and the snow.	Ideally we would like this skier to manage the flexion and extension movements starting from the ankle.

Number 4: Prescribe a specific change in one fundamental. Included is one possible progression. There are different approaches to developing the same outcome.

Note the column of priority in the answer key. This column is intended to help you prioritize which fundamental/skill is most likely to help this student achieve their goal.

Fundamental /skill	Body Performance: Prescription for change	Ski Performance	Desired Outcome

Fundamental /Skill	Body Performance: Prescription for change	Ski Performance	Desired Outcome	Priority
#1 Controlling CM along the length of the ski/ Pressure	More even flexing of the ankle, knee and hip to move the CM along the length of the ski. From a static position have the student practice flexing all joints to feel equal pressure along the full length of the foot. Practice flexing and extending in a straight run. Take the centered flexed position into wedge turns.	The pressure would be directed to the center of the ski.	More centered and balanced athletic stance.	1

Fundamental /Skill	Body Performance: Prescription for change	Ski Performance	Desired Outcome	Priority
#2 Foot to foot pressure/	Decrease the flex of the inside leg and increase the flex of the outside leg. While standing still on flat ground have the student move side to side and feel how the pressure changes from foot to foot. Have them observe where their jacket zipper is lined up as they move. Then have the student do the same thing while turning. Help the student realize that they are more balanced when the jacket zipper is evenly between both skis. Practice one turn, then the other turn and connected turns, all the while trying to maintain the zipper in between the skis and feeling more pressure on the outside foot.	The pressure will be directed to the outside ski naturally as the skis cross the fall line.	More pressure directed to the outside ski.	3

Fundamental /Skill	Body Performance: Prescription for change	Ski Performance	Desired Outcome	Priority
#3 Edging/ Edging	Introduce the use of the ankle and knee joint to edge the ski. Show how a ski is edged by tipping the ankle in. Demonstrate the effect of edging while sidestepping. Practice with wedge turns feeling the edges engage through the end of the turn.	Both skis will be edged through this phase of the turn.	The ability to create functional edge angles appropriate for pitch of hill, turn shape and size.	4

Fundamental /Skill	Body Performance: Prescription for change	Ski Performance	Desired Outcome	Priority
#4 Rotation/ Rotation	Introduce leg rotation to make the skis turn. Start by standing on one leg and rotate the unweighted ski back and forth like a windshield wiper. Perform with both legs. Feel how the femur is turning in the hip socket. Next move to making bow ties in the snow with just your boots and then skis on. Take the practiced leg movement into wedge turns.	The turn shape will be round with the tail of the ski following the tip.	Control over the rate in which the skis rotate through the turn.	2

Fundamental /Skill	Body Performance: Prescription for change	Ski Performance	Desired Outcome	Priority
#5 Ski and snow interaction/ Pressure	It is not necessary to have much flexion and extension movements in beginner zone terrain when the skier is moving slowly. Practice flexing and extending ankles, knees, and hips statically making sure the time to extend is equal to the time to flex. Take this movement pattern into a straight run and then into wedge turns.	Ability to manage the pressure of the skis on the snow.	Starting to feel how extension movements help with turn initiation and flexion can help with the turn completion.	5

Number 5: Observe and describe how equipment choices and issues affect performance and safety in the beginner skier zone

Did you have any concerns with his equipment? Yes or No If yes, what are things you would look for or ask?

Answer: The equipment seemed to be appropriate for the student. There were no obvious issues observed from the video however, it is appropriate to check that only a sock is in the boot and the boots are buckled correctly.