Level 2 Pre-Course Quiz

This lesson is intended review and draw connections between your previous level 1 avalanche course and the AIARE level 2 course. The goal here isn't to recall every detail of your level 1 course, but rather to review critical information and to provide context for how this course builds upon your level one.

By the end of this lesson you should:

- Complete and discuss the Level 1 review quiz
- Review AIARE's Decision Making Framework (DMF). You will be introduced to how knowledge, observation and analysis skills gained in this course will be incorporated into the DMF.
- Review avalanche types, characteristics and terrain terms
- Review Red Flags and the Observation Checklist and link to the Level 2 Instability Factors Checklist
- Debrief the risks associated with overconfidence with conclusions and link to the Case Study and the need for good terrain skills.

Key Words

Loose Avalanche, Slab Avalanche, Concavity, Convexity, Terrain Trap, Trigger Point, Path, Classic Path, Undefined Path, Start Zone, Track, Run Out, Deposit, Flanks, Bed Surface, Crown, Stauchwall, Lee, Windward, Alpine, Continental, Intermountain, Maritime, Arctic Maritime, Low, Moderate, Considerable, High, Extreme Danger, (add any other level 1 vocabulary)

Activity – Level 1 Review Questions

The quiz is designed to aid you in assessing your knowledge of some important material from the level 1 course and to help instructors identify what subjects need to be reviewed in greater detail and which are not an issue. You will not receive grade marks on this quiz, nor is it pass/fail. You need not put your name on the quiz if you prefer.

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Do not write an essay. For short answer questions, a sentence or two is all that is required. If there are more than one right answer in multiple choice questions, circle all the correct answers. If you do not know the answer, please do not guess—simply write "I don't know" or leave the question blank. This helps instructors more than guesses or answers that are stabs in the dark.

Simply in the interests of efficiency, there will be a time limit of 30 minutes. If you are getting bogged down, answer the questions that are easy and skip the ones you find more difficult. Come back to the difficult ones if you have time. Once you have finished your quiz, please give it to the instructors who will review your answers and design a review session that meets the needs of the majority of the class as best as possible.

Avalanche Types and Characteristics

1) Describe the characteristics of these avalanche types; under what conditions would they be encountered:

   a) Wind slab

   b) Storm slab

   c) Persistent slab

   d) Persistent deep slab

   e) Wet slab

   f) Loose snow – wet and dry

2) What observations would you take to determine which of the following avalanche types you might encounter on a tour day?
   a) Wind slab

   b) Storm slab

   c) Persistent slab

   d) Persistent deep slab

   e) Wet slab

   f) Loose snow wet and dry

3) Describe the destructive potential of a Size 2 avalanche.

4) Describe the size of a Size 2 avalanche using the “Relative to Path” classification system.

Avalanche Terrain

5) What are the two main terrain factors that influence where avalanches might start?

6) Some common trigger points are:
   a) Convex areas
   b) Shallow snow
   c) Scattered trees or rocks
   d) Below cornices

7) What are three signs that avalanches have run in the past?

8) List three types of safer terrain.

9) What are terrain traps? Give two examples.

Creation and Metamorphism of the Mountain Snowpack

10) Atmospheric snow falls from the sky in various shapes and sizes. True False

11) Differing snow types and weather conditions cause the snowpack to form in layers. True False

12) Circle "M" to indicate a maritime climate characteristic and "C" to indicate a continental climate characteristic:
M C High precipitation rates
M C Strong pre-storm winds
M C Cold temperatures
M C Shallow variable snowpack
M C Strong, uniform, snowpack with mostly rounded grains
M C Avalanches often occur without significant storms
M C Avalanche danger rises quickly and falls quickly

13) The **main** "direct weather" factors that cause layers at or near the snowpack surface to change characteristics are:
a) Wind
b) Humidity
c) Surface hoar
d) Sun
e) Riming
f) Rain
g) Temperature

14) Once layers are buried more deeply, weather affects them indirectly and faceting or rounding are the main types of metamorphism. Circle "F" for faceting or "R" for rounding to indicate which process is more likely to occur due to the following factors:
F R Shallow snowpack
F R Warm air temperatures
F R Deep snowpack
F R Cold air temperatures

Avalanche Danger and Danger Factors

15) Three conditions are required for avalanche danger to exist. They are:
a) Unstable snow
b) High altitudes
c) Poor weather
d) Avalanche terrain
e) People, equipment, or facilities
f) Warm temperatures

16) List the five avalanche danger rating categories.

17) Factors that influence avalanche danger or indicate that danger may exist are recorded in three *data classes*. They are weather, snowpack, and avalanche activity. In each of these data classes there are a number of *information categories*. Choosing from the list below right, place the information categories under the correct data class heading on the left.

Data Classes

Weather

Snowpack

Avalanche Activity

Information Categories

Precipitation
Layers
What triggers?
Snow cover

Solar radiation
How do they look?
Bonding
When did they happen?
Wind
Temperature
Instability signs
Where are they happening?

18) We make several observations in each information category listed above to help make decisions about avalanche danger. When we see a critical value we often call it a “red flag”. List two important observations we make in each of the following information categories and red flag values that would indicate avalanche danger. An example is provided to get you started:

Information Category:	**Red Flag Observations**
Precipitation **Example:** *Intensity* *Accumulation* *12 hours*	*> 3 cm/hour* *> 30 cm in*
Snow cover	
What triggers?	
Layers	
Solar radiation	
How do they look?	
Snowpack Tests	
When did they happen?	
Wind	
Temperature	
Instability signs	
Where are they happening?	

Travel Techniques/Planning and Preparation

19) List three techniques you can use when traveling in avalanche terrain:

20) List three group management techniques that minimize potential problems when traveling in avalanche terrain.

21) List three sources for avalanche danger information.

22) We usually plan our ideal trip, that is, the trip we want to do. In addition to our ideal trip, or as part of it we should plan some alternatives and options. What are some considerations when planning options and alternatives?

23) List three essential pieces of personal equipment everyone in a group should have.

24) List three essential pieces of group equipment every group.

Decision Making

25) What are three factors or combinations of factors that indicate travel in avalanche terrain is not recommended?

26) Name five “human factors” that have an affect on decision making.

27) List five common errors often seen in avalanche accident analyses.

Discussion – Level 1 Review

Guided by your quiz answers, your instructor will lead a group discussion to clarify critical issues not clearly understood. Since the level 1 course provides the foundation for the remainder of your avalanche career, be sure to let your instructors know if you have any specific questions lingering from your level 1 course.

Level 1 topics that need to be understood at this point:

- Avalanche characteristics and terminology
- Terrain characteristics and terminology
- Red Flags for Observations – Observation Checklist