

Finn's Alpine Expedition: Mapping Mountain Zones

Learning objective: To identify and describe the altitudinal zonation of mountain environments and the physical processes that shape them.

Finn the dolphin has travelled from the coast to the highest peaks! Use the word bank to label the different zones of a mountain on your diagram. Then, answer the following questions to demonstrate your understanding of how altitude affects climate and vegetation.

Word bank: Montane zone · Sub-alpine zone · Alpine zone · Glacial summit · Permafrost · Treeline · Biodiversity

1. Explain why the temperature decreases as you ascend a mountain. What might happen to the variety of wildlife found at the base compared to the summit? (3 marks)

2. Compare and contrast the vegetation found in the 'Montane zone' versus the 'Alpine zone'. Why is it difficult for trees to grow above the treeline? (3 marks)

3. Justify why mountain ranges are often significant sources of water for the rivers flowing through the valleys below. (2 marks)

4. If a climber buys specialised gear for £145.50 and a map for £12.75, what is the total cost of their equipment? If they have a £200 budget, how much change do they receive? (2 marks)

5. What might happen to the local ecosystem if the temperature on a mountain summit rose significantly over the next fifty years? (3 marks)

6. Define 'permafrost' and explain the specific challenges it poses for human infrastructure, such as building roads or mountain huts. (2 marks)

Draw: Draw a cross-section of a large mountain. Label the four main zones (Montane, _____ Sub-alpine, Alpine, and Glacial summit) and illustrate at least two specific examples of flora or fauna that would be adapted to survive in each zone.



Extension challenge: Imagine you are an explorer writing a field journal entry. Describe the transition of the landscape as you hike from the valley floor to the summit. Use at least five words from the word bank and include a detailed sensory description of the changing weather and terrain.