

MOUNT EVEREST

AND ITS ASCENT

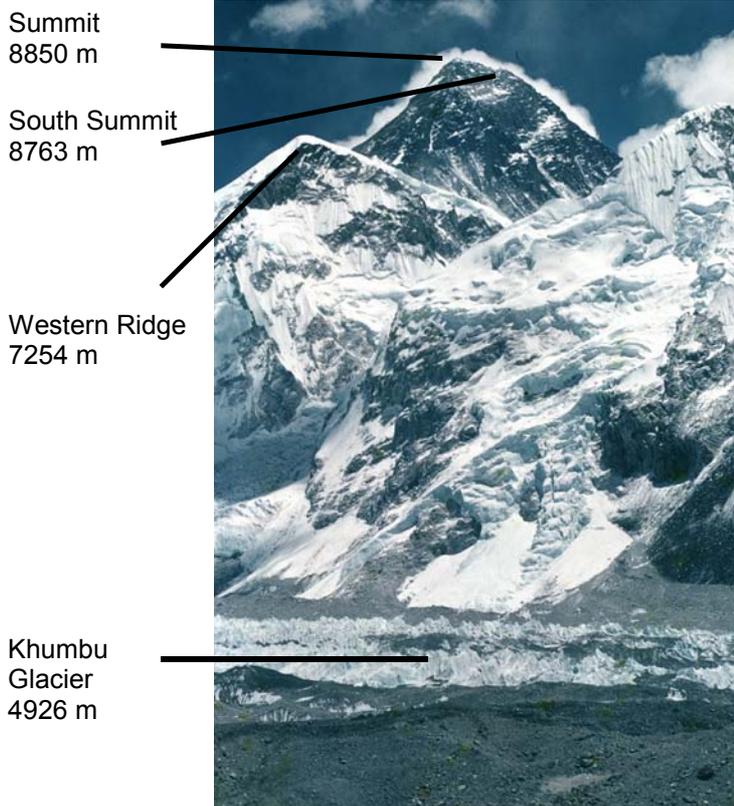


WORKSHEET

THE DEATH ZONE

The summit of **Mount Everest** is 8850m (29,035 ft).

At these heights some people get sick and even die. As mountaineers climb the mountain they certainly feel the affects of the changes in the atmosphere. When trekkers first started going to Mount Everest, about one in every 50 died. Above 3000m is called the **Death Zone**.



Mount Everest facts:

- It is the highest mountain in the world at 8850m (29035 ft).
- It's peak is just below the cruising height of a jet.
- Mount Everest is in the central Himalaya on the border between Tibet and Nepal.

Task 1

If the temperature falls by 10 °C every 1000m you climb, what would you expect the temperature to be at the locations listed below?

Fill in the table with your answers:

	Height (metres)	Estimated temperature (°C)
Khumbu glacier	4926	-15 °C
Western ridge		
South summit		
Summit		

Vocabulary

Troposphere is the layer of atmosphere next to the Earth's surface. It is about 7-8 km thick and is where most of the weather activity affecting human life takes place. In this layer, the temperature falls with height.

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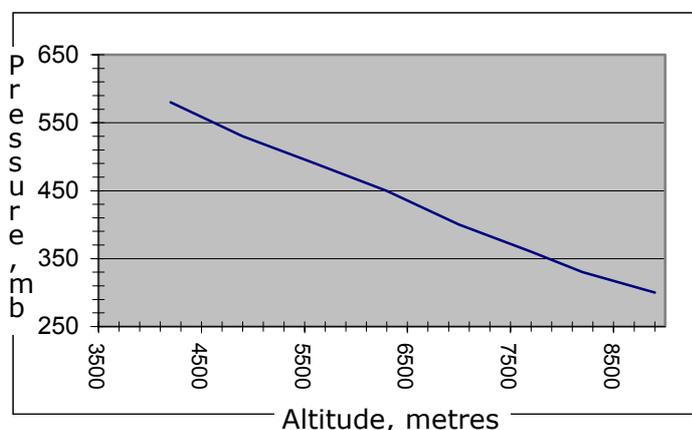
Sherpa with badly frostbitten fingers

Climbers have to take precautions to guard themselves against the extremely low temperatures. Without proper equipment or poor planning, frostbite is an ever present threat.

What precautions could you take to prevent you from getting frostbite?

Task 2

As you go further up a mountain, the atmospheric pressure drops. Using the graph, estimate what the air pressure would be at various points up Mount Everest, and **fill in the table**.



	Height (metres)	Estimated pressure (millibars)
Khumbu glacier	4926	530
Western ridge		
South summit		
Summit		

How do you think low atmospheric pressures might affect a climber's breathing?



Primitive oxygen equipment, 1936

Fact:

- At 2,500m many climbers have headaches, loss of appetite and nausea. Why? Because as available oxygen falls, the body responds by increasing the blood flow to the brain, but it can overcompensate and fluid leaks from blood vessels causing the brain to swell. This is **Acute Mountain Sickness**. If it goes untreated it can be fatal.

Vocabulary

Atmospheric pressure is the pressure exerted by the weight of the atmosphere on the earth. The atmospheric pressure determines how much air is 'pushed' into your lungs with each breath. It is measured in millibars.

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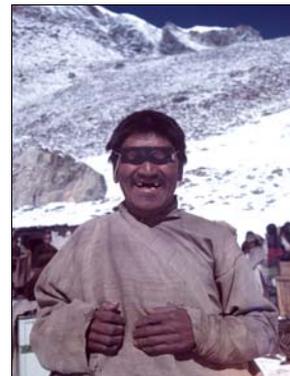
Task 3

The 'Khumbu cough' is a common complaint among Mount Everest climbers. It is a persistent dry cough which can be so bad that it can result in broken ribs! It is caused by the cold dry air on the mountain.

Why do you think the air is very dry (unsaturated) high up on the mountain? Where has all the moisture in the air gone? Clue: go back to task 1 and look at the temperatures.

Task 4

What kind of precipitation would you expect to experience if you were climbing Mount Everest?



A Sherpa on Mount Everest wearing homemade goggles

The average albedo on Earth is 30% but it can increase to up to 90% on the slopes of Everest. **Why do you think this is?**



Girl using her hair to shield her eyes.

What affects do you think the high albedo has on Mount Everest climbers?

Vocabulary

The **albedo** is the ratio of solar radiation falling on the surface of the Earth compared to the amount reflected from it.

Precipitation means all forms of water which falls to the ground. It take many forms, for example, rain, dew, hail and snow.