

# Lesson 1: Mount Everest

## Lesson Plan

Use the *Mount Everest* PowerPoint presentation in conjunction with this lesson. The PowerPoint presentation contains photographs and images and follows the sequence of the lesson.

If required, this lesson can be taught in two stages; the first covering the geography of Mount Everest and the second covering the successful 1953 ascent of Everest by Sir Edmund Hillary and Tenzing Norgay.

### Key questions

- Where is Mount Everest located?
- How high is Mount Everest?
- What is the landscape like?
- How do the features of the landscape change at higher altitude?
- What is the weather like? How does this change?
- What are conditions like for people climbing the mountain?
- Who were Edmund Hillary and Tenzing Norgay?
- How did they reach the summit of Mount Everest?
- What did they experience during their ascent?
- What did they do when they reached the summit?

### Subject content areas

- Locational knowledge: Pupils develop contextual knowledge of the location of globally significant places.
- Place knowledge: Communicate geographical information in a variety of ways, including writing at length. Interpret a range of geographical information.
- Physical geography: Describe and understand key aspects of physical geography, including mountains.
- Human geography: Describe and understand key aspects of human geography, including land use.
- Geographical skills and fieldwork: Use atlases, globes and digital/computer mapping to locate countries and describe features studied.

### Downloads

Everest (PPT)

Mount Everest factsheet for teachers PDF | MSWORD

Mountain template PDF | MSWORD

Examples of pupils' work (PDF)

### Additional links:

For detailed background information on the geography of Mount Everest and the first ascent go to the RGS-IBG Unlocking the Archives website:

<http://www.unlockingthearchives.rgs.org/themes/everest/>

You might also want to look at the RGS-IBG resources website:

<http://www.rgs.org/OurWork/Schools/Teaching+resources/Key+Stage+1-2+resources/Mount+Everest+and+its+ascent.htm>

### Starter

Begin the lesson by showing pupils the iconic photograph of Tenzing Norgay at the summit of Everest. Do not contextualise the photograph.

**Ask pupils to identify enquiry questions:** who, what, where, when and why.

Who is it?

Tenzing Norgay (the photograph was taken by Edmund Hillary)

Where is it? At the summit of Mount Everest  
When do you think the photo was taken? 29<sup>th</sup> May 1953  
What does the photograph show? The first successful ascent of Everest (a successful ascent is when the climber also returns safely). Since 1953, approximately 3000 people have climbed Everest.

**Other possible enquiry questions:**

Is it hot or cold? The sky is blue, but there is snow on the ground.  
What do you notice about the clouds? Everest's summit is above cloud level. The clouds can be seen by Norgay's feet; therefore the mountain is very high.  
What else gets above cloud level? Planes; people could theoretically step out of a plane onto the summit, no parachute would be needed. In reality they would die almost immediately due to altitude sickness.  
What is he wearing? Thick clothes to keep him warm; the summit of Everest is extremely cold.  
What is he wearing on his face? He is wearing goggles to prevent snow blindness and an oxygen mask due to the thin air on the summit.  
What is he holding? The flags on his ice axe are the flags of the Great Britain, Nepal, the United Nations and India.

Sum up with the pupils what we already know about Mount Everest from the evidence in the photograph.

## Main Teaching

**Show pupils the location of Everest** using Google Earth or an atlas. To download Google Earth go to the Google Earth website: [http://www.google.co.uk/intl/en\\_uk/earth/](http://www.google.co.uk/intl/en_uk/earth/). Explain that the mountain is part of a range of mountains called the Himalayas. Point out the continent and the countries in which the Himalayan range is located. Explain to pupils that Everest is 8849 metres above sea level (29028 feet). It is just one of 30 peaks of the Himalayan range. Compare this to the highest peak in the UK, Ben Nevis at 1344 metres.

**Show pupils the photograph of Mount Everest.** When examining the photograph ask:

What can you see?

What words would you use to describe the landscape?

The name Himalaya is an old Sanskrit word meaning 'abode of snow.' Is this a suitable name?

Would it be easy or hard to climb?

Other than climbing, what is the mountain used for? Is it habitable?

**The Landscape:** Explain that the landscape of the mountain is of barren rocks, snow and ice with no visible vegetation. The peaks are covered in ice and snow. In the foothills of the mountain, however, there is farming of potatoes, barley, buckwheat, lentils and rice. Sherpa people use local forests for timber for building, firewood and for animals. Wood is also used for heating homes.

The temperature on the mountain changes; it is colder at higher altitudes so the higher up the mountain you go, the colder it gets. At 5000 metres (at Base Camp, where all expeditions begin) the temperature can range from minus 3°C during the summer, to minus 17°C during the winter. In the summer, during the day, it can feel warmer and climbers have to use sun screen to protect their skin.

Near the summit of Mount Everest the temperature drops as low as minus 60°C. In July, the warmest month, the average temperature at the summit is minus 18°C (the same temperature as a domestic freezer). It never gets above freezing on the mountain.

Ask the pupils whether they think Mount Everest could ever be a habitable environment.

The weather on the mountain can be very unpredictable and very harsh. Raging storms and howling winds can move in without warning. When the weather turns bad, visibility is poor and climbers can die in falls or in avalanches. More than 200 people are known to have died on Mount Everest.

**Animals on the mountain:** Show pupils the photograph of Yaks. Yaks are used primarily to transport goods up and down the mountain. They are tough, hairy animals well suited to living at high altitude. Other animals spotted on the mountain are spiders and birds.

#### **Naming the parts of the mountain:**

Using the annotated photograph of Mount Everest, introduce the terminology to describe the physical features of the mountain. You may like to cover or remove these labels and ask the pupils to spot these features, and correctly label the mountain, as you explain the definitions.

Peak: encourage pupils to use the term peak or summit, rather than 'top'

Ridge: where two sides of mountain meet

Glacier: like a frozen river, the ice slowly moves down the mountain

Moraine: rock debris deposited in front of an advancing glacier

#### **Other features of the landscape: crevasse:**

Ask pupils why they think a step ladder is needed by climbers. Then show pupils the photograph of a crevasse. Explain that a crevasse is a deep crack in a glacier, often with vertical walls. Crevasses can be up to 50 metres deep and are a major hazard to mountaineers.

Show pupils the photograph of Edmund Hillary and Tenzing Norgay crossing a crevasse.

The only way to cross a crevasse is on a step ladder, which is laid flat to form a bridge that is crawled across.

#### **What other dangers does the Everest environment pose?**

**Lack of oxygen:** Show the photograph of Edmund Hillary and Tenzing Norgay climbing Mount Everest with oxygen cylinders on the backs.

Ask pupils what they can see on the photograph. What equipment is evident? Why would climbers need oxygen cylinders? What does this tell us about the air on Mount Everest?

**Altitude sickness:** Explain that people cannot live for long periods at above 5000 metres (Base Camp). Air gets thinner at high altitudes. Many climbers suffer from altitude sickness which is a lack of oxygen to the brain. Altitude sickness makes it difficult for people to think clearly and can make people weak and nauseous. To cure altitude sickness climbers need to walk back down the mountain.

The death zone is a term applied to altitudes of over 8000 metres (26000 feet). In the death zone survival times are limited. A side effect of this is an increased breathing rate, from 20-30 breaths per minute at sea level to 80-90 breaths per minute in the death zone. This means that just trying to breathe or do a simple task can cause a climber to become exhausted.

**Frostbite:** Ask pupils how our hands feel if we go outside in winter.

Explain that frostbite happens at extremely cold temperatures when blood stops reaching the body's extremities, usually the fingers and toes. There are three stages of frostbite. Frostnip is the first stage and the least severe but in extreme cases frostbite can result in the loss of body parts.

**Snow blindness:** With intense bright light reflected off a snowy terrain, mountaineers can experience snow blindness. To prevent this temporary loss of sight they should wear goggles.

**Making a cup of tea:** Because of low air pressure and the extreme cold of Everest it can take two hours to boil enough snow to make a cup of tea!

## Climbing Mount Everest: The first successful ascent

Show pupils photographs of Edmund Hillary and Tenzing Norgay.

Edmund Hillary was born on July 20, 1919, in Auckland, New Zealand. He had tried to climb Mount Everest previously in 1951.

Tenzing Norgay was born in Tibet in 1914, in village within view of Mount Everest. It is believed that when Norgay was a baby a holy man said that he was destined for great things and that this was when he was given the name Norgay, meaning 'fortunate one'. Like Hillary, Tenzing Norgay had a spirit of adventure. He built a reputation as a dependable, hardworking and knowledgeable porter and joined seven Everest expeditions prior to 1953. He said, 'the pull of Everest was stronger for me than any force on Earth'.

In 1953 a British team, lead by army officer Colonel John Hunt attempted to climb Mount Everest. Edmund Hillary and Tenzing Norgay were members of the 400 strong team.

Show pupils the photograph of all the equipment. The equipment, which weighed 8333kg (7.5 tons), was carried all the way by 350 porters. It took 12 more people just to carry the money to pay them! Today mountaineering equipment is lighter and the teams are smaller.

By April 1953 the team had arrived and set up Base Camp. From there teams set up other camps higher and higher up the mountain, dropping off tents, food and oxygen. During one of these trips Tenzing Norgay saved Edmund Hillary's life (see *Everest factsheet for teachers* for additional information). In total nine camps were laid out – each one higher and higher up the mountain- the final camp was at 8504 metres.

Ask pupils where this is. (The death zone)

Four climbers attempted to reach the summit but ran out of oxygen. Then Hunt directed Edmund Hillary and Tenzing Norgay to go from Camp 9. On the night before the ascent the temperature was minus 34°C with hurricane force winds. Tenzing said that the wind sounded like, 'the roar of a thousand tigers.'

At 6.30am on 29<sup>th</sup> May 1953 they awoke to clear skies. Hillary's boots froze because he had forgotten to put them inside his sleeping bag and they had to be thawed on a stove. Carrying two full oxygen cylinders the men trudged to the summit. Every step was an effort. They followed the footprints of the previous climbers who had tried to reach the summit.

Before the summit was a 12m high rock face. Hillary wedged himself in a small chimney sized crack and climbed, heaved and squirmed his way up. This final cliff is now called the Hillary Step. The summit was still a bit further. But, by 11.30am they had reached it.

**What did they do on the summit?** Hillary took off his mittens to shake hands with Tenzing, but Tenzing flung his arms around Hillary and thumped his back! Hillary took a photograph of Tenzing with unfurled flags on his ice axe. Hillary then took photos looking down each side of the mountain in every direction to prove that they had reached the summit. Tenzing said a silent prayer of thanks to Chomolungma (Mount Everest) and buried offerings to the gods in the snow – including sweets given to him by his daughter. Hillary buried a small cross given to him by Colonel John Hunt.

They spent 15 minutes on the summit.

**The Descent:** Show the photograph of the men enjoying a well earned hot drink. Edmund Hillary and Tenzing Norgay made it back to their tent at 2.00pm and stopped to have a drink. They then continued their way down. When Hunt saw them from a distance he thought they looked so miserable they had failed in their attempt! The Times newspaper had an exclusive on the story so a coded telegram was sent to them first.

### **Main Activity**

Either, pupils write a diary entry, either as (Sir) Edmund Hillary, or Tenzing Norgay after their successful ascent. The diary should include geographical vocabulary, alongside facts and information about the mountain and the men's endeavor, not just express excitement.

Or, pupils can complete a 'Mount Everest factsheet' using the *Mountain template*.

### **Plenary**

Pupils can share their diary entries with the class.