

Pressure and altitude

Introduction

Mount Everest is the tallest mountain in the world, and is the ultimate challenge for mountaineers. As well as the steep climb and the difficult weather conditions, mountaineers must also prepare for changes in atmospheric pressure.

In this activity you will use your research skills to find out:

- how and why atmospheric pressure changes with height above sea level
- the effects on the body of changes in atmospheric pressure
- how mountaineers can prepare for these changes.

You will be using your literacy skills to produce a leaflet for people, such as mountaineers, who are planning to travel to places high above sea level.

Brief

You will produce a leaflet for people, such as mountaineers, who are planning to travel to places high above sea level.

Your leaflet should:

- describe what is meant by atmospheric pressure and how it is caused
- state how atmospheric pressure changes with increasing height above sea level
- describe how changes in atmospheric pressure affect the body at high altitudes
- explain how mountaineers can reduce the effects of changes in atmospheric pressure
- be made from one folded piece of A4 paper
- be suitable for people with no scientific knowledge.

Step 1

Make sure you understand what atmospheric pressure is, and what causes it. You can use your book and the two sources to help you.

Step 2

Research the following topics:

- what atmospheric pressure is, how it is caused, and how it changes with height above sea level
- how changes in atmospheric pressure affect the body, and how people feel the effects on high mountains (altitude sickness)
- what people can do to reduce the effects of changes in atmospheric pressure (acclimatisation).

Step 3 (extension)

Some communities live at high altitudes. Find out about the highest settlements in the world, and how people survive.

Step 4

Plan appropriate sub-headings to structure your leaflet, and the important information you want to include. Find some appropriate pictures to illustrate your leaflet.

Step 5

Make your leaflet.

Sources**Atmospheric pressure and altitude**

This website explains what atmospheric pressure is and why it changes with altitude:

<https://www.weather.gov/jetstream/pressure>

Atmospheric pressure and climbing

This website looks at the effect of changes in atmospheric pressure with altitude, why it changes with altitude, and how this change can affect climbers. (1 metre is about 3 feet.)

<http://www.hikingdude.com/hiking-high-altitude.php>

Preparing to climb at altitude

This blog website contains information about how to reduce the effects of changes in atmospheric pressure on mountaineers through the process of acclimatisation:

<http://www.mountainprofessor.com/acclimatization.html>

Living at high altitudes (extension)

The highest cities in the world:

<https://www.thoughtco.com/highest-cities-in-the-world-1434524>

How humans have adapted in different ways to life at high altitudes:

https://news.nationalgeographic.com/news/2004/02/0224_040225_evolution.html

Writing frame

You will produce a leaflet for people, such as mountaineers, who are planning to travel to places high above sea level. Summarise your research findings on the key areas below.

What is meant by atmospheric pressure?

What causes atmospheric pressure?

How does atmospheric pressure change with height above sea level?

How do changes in atmospheric pressure affect people at high altitudes?

How can the effects of changes in atmospheric pressure be reduced?

What are the highest settlements in the world?
How do people survive there? (extension)

Important points

- Make sure your leaflet fits on one folded piece of A4 paper.
- Use interesting pictures and language that people with no scientific knowledge can understand.

Your work

You have now made a leaflet for people, such as mountaineers, who are planning to travel to places high above sea level.

Look at the questions below and check whether you have met all the criteria given in the brief.

- Have you described what is meant by atmospheric pressure and how it is caused?
- Does your leaflet state how atmospheric pressure changes with increasing height above sea level?
- Have you described how changes in atmospheric pressure affect the body at high altitudes?
- Does your leaflet focus on how mountaineers can reduce the effects of changes in atmospheric pressure?
- Is your leaflet made from one folded piece of A4 paper?
- Is your leaflet suitable for people with no scientific knowledge?
- Have you included pictures and made it interesting for people to read?