

MOUNTAIN ENVIRONNMENTS

LI: To understand the climate of a mountain environment.



Vocabulary

Match the words to the images.

- mountaineer
- summit
- thermals
- oxygen



Divers actually have air in their tanks, which contains oxygen and other gases.

Vocabulary

Match the word to the definition:

1. ascent

2. altitude

3. weather

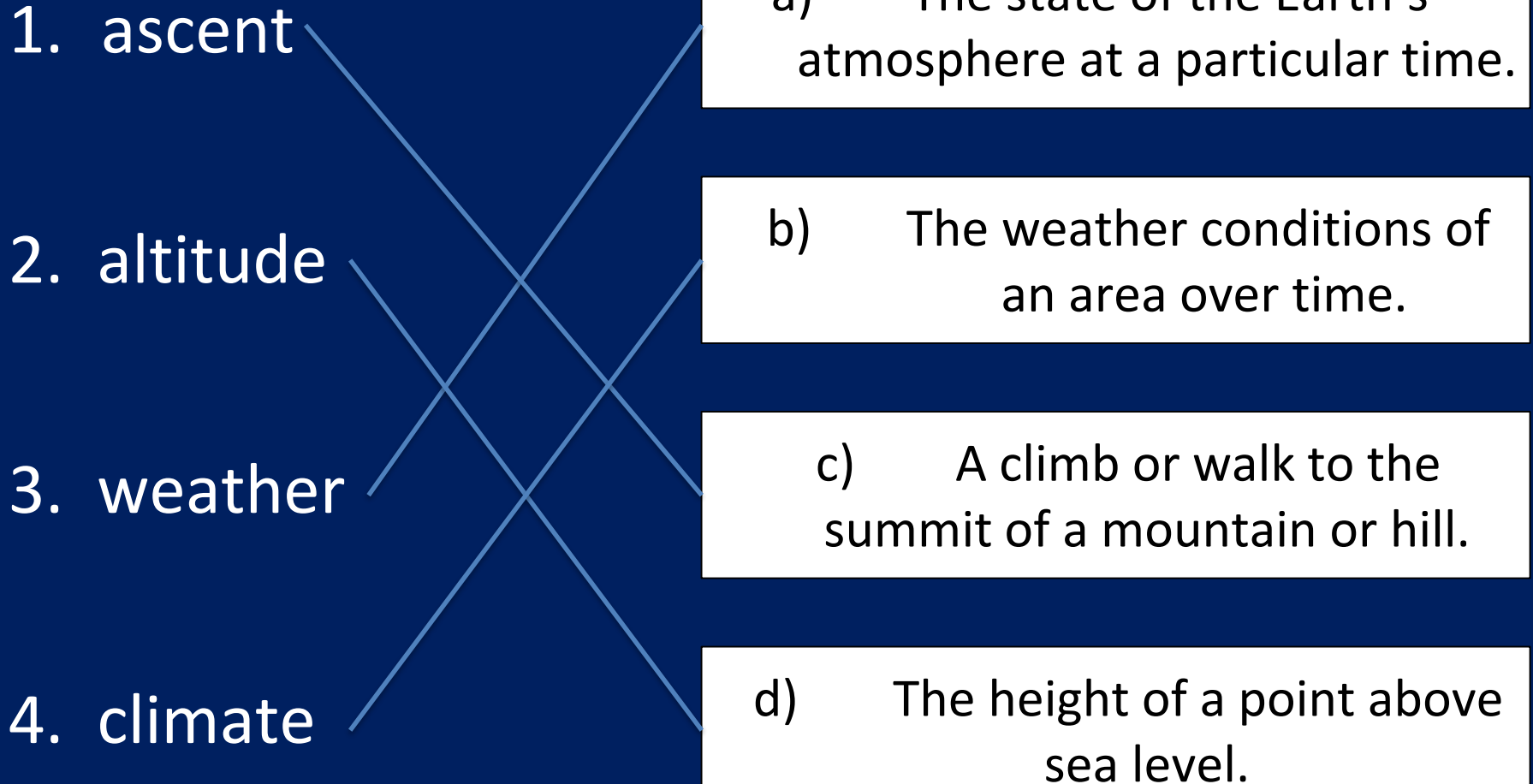
4. climate

a) The state of the Earth's atmosphere at a particular time.

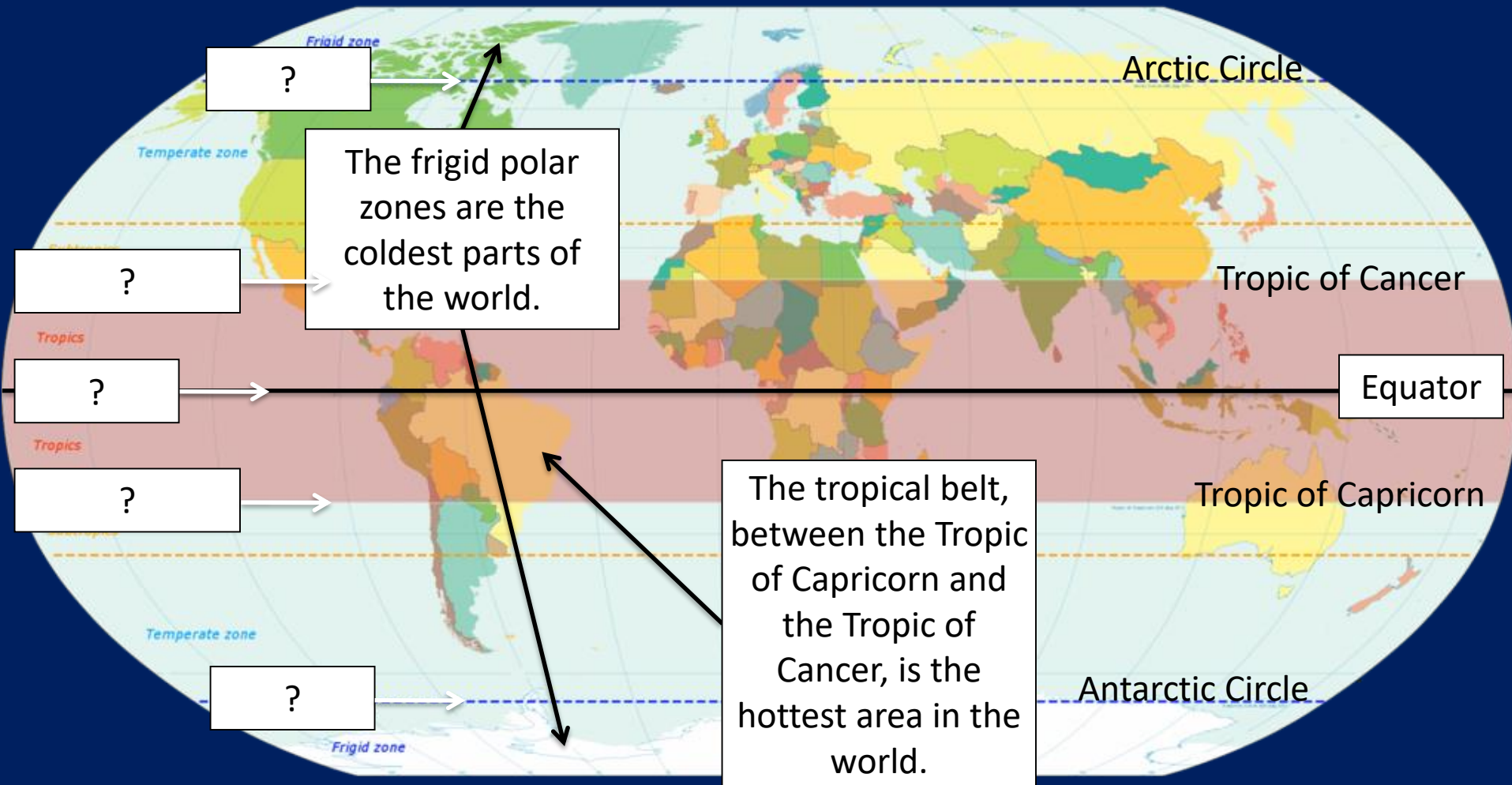
b) The weather conditions of an area over time.

c) A climb or walk to the summit of a mountain or hill.

d) The height of a point above sea level.



Let's remind ourselves of the world's climate zones.



What are the names of these imaginary lines around the world?

Which are the **hottest** and **coldest** climate zones?

Mountain climates are colder because of their high altitude. The higher up a mountain you go, the colder it gets, as Steve Backshall shows [here](#).

Mountains also have more rainfall which often falls as snow.

Why do you think it snows more in the mountains?



Many mountain ranges are so high, their peaks are covered in snow all year round.



Even mountains near the equator, like Kilimanjaro in Africa, have snow at their summits, even in the summer months.

The climate in mountain ranges changes throughout the year.
This is the famous Alpine town of Zermatt in Switzerland.



Winter – cold and cloudy

Why is the Matterhorn covered in snow in the summer?



Summer – warm and dry

Describe the weather conditions in each photo.
What time of the year do you think they were taken?

This is Everest Base Camp (5,380m), where climbers start their ascent to the summit of Mount Everest (8,848m).

Where do you think this is?



After days of climbing, you might be lucky enough to see this view. If you did, you would be just a few hundred metres from the summit.



If you reach the top, it's worth it just for the [view](#).
Of course you have to take a photo to show your grandchildren.



Oxygen mask

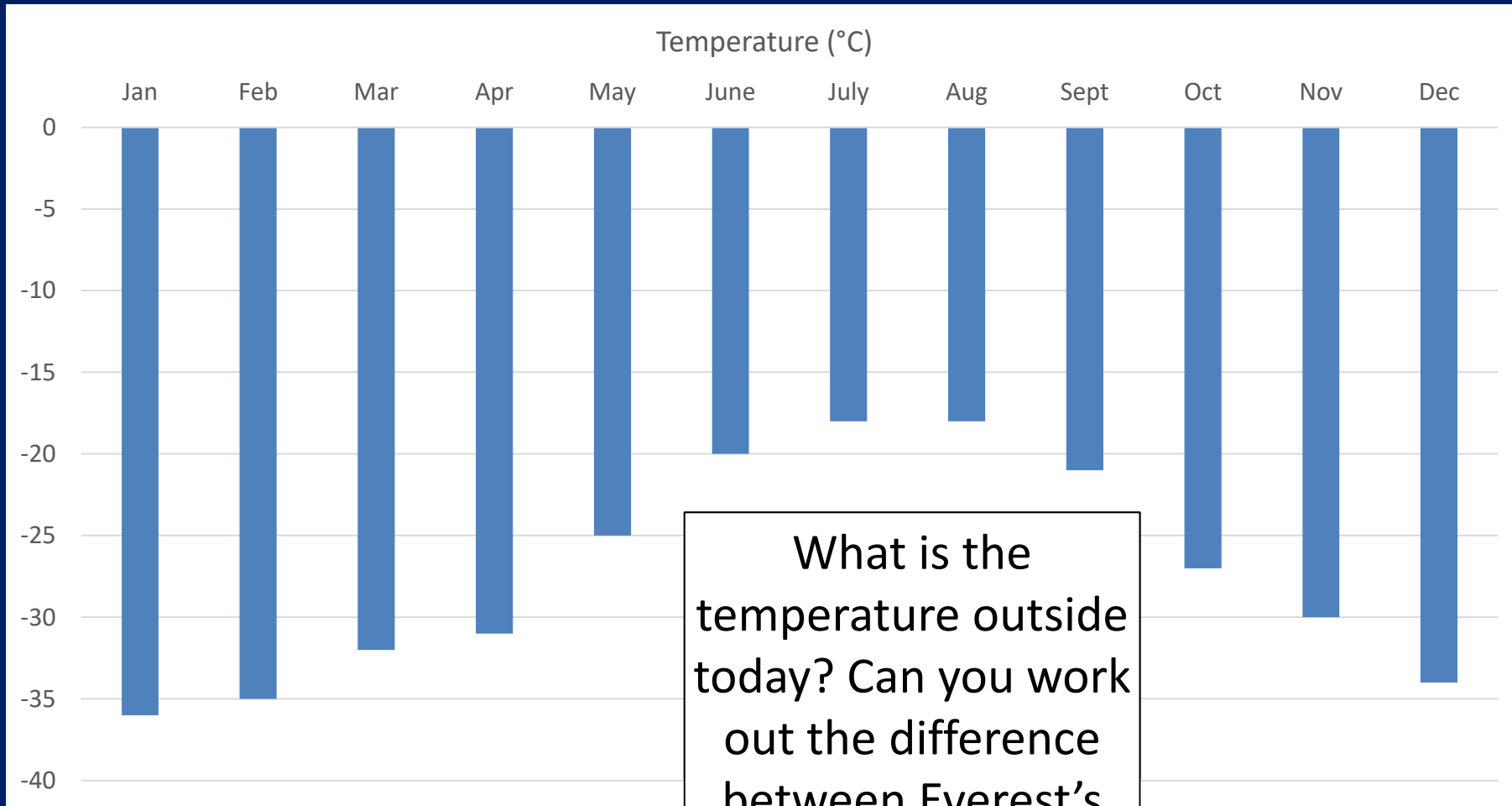
There is two-thirds less oxygen at the top of Everest.

Thermal clothing

The temperature at the summit of Everest can be as low as -60°C .

What would the climate would be like at the top of Mount Everest?
What kind of equipment do climbers need and why?

The temperature at the top of Everest is always well below freezing (0°C). This graph and table show the average temperature at Everest's summit.



What is the temperature outside today? Can you work out the difference between Everest's summit and your school playground?

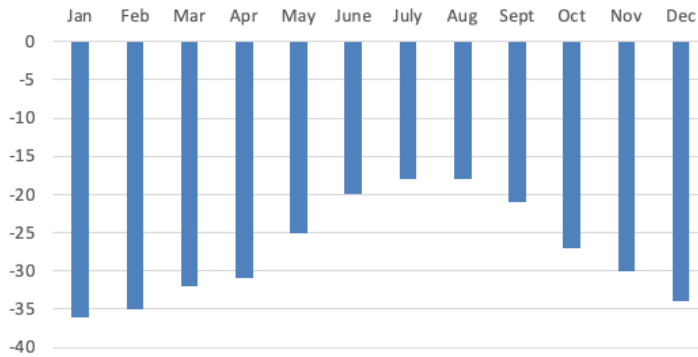
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Temp ($^{\circ}\text{C}$)	-36	-35	-32	-31	-25	-20	-18	-18	-21	-27	-30	-34

Activity 1:

Date: _____

LI: To understand the climate of a mountain environment.

Average temperature at the summit of Mount Everest



	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Temp (°C)	-36	-35	-32	-31	-25	-20	-18	-18	-21	-27	-30	-34

Use the information in the graph and table to answer the questions below:

1. What is the average temperature at Everest's summit in November? _____
2. What is the average temperature at Everest's summit in March? _____
3. Which is the coldest month of the year at Everest's summit? _____
4. Which is the warmest month of the year at Everest's summit? _____
5. Why do you think it is warmer in June, July and Aug compared to Dec, Jan and Feb?

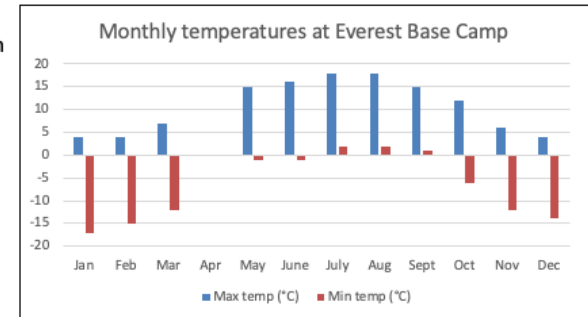
6. What is the difference in temperature between May and July? _____
7. By how far does the temperature drop from August to January? _____
8. Tick the **two** statements which are correct:
 - It is warmer at Everest's summit in April than March.*
 - The winter months are warmer than the summer months.*
 - The temperature at Everest's summit is below freezing (0°C) all year.*

Now look at the temperature data for Everest Base Camp and answer the questions:

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Max (°C)	4	4	7	10	15	16	18	18	15	12	6	4
Min (°C)	-17	-15	-12	-5	-1	-1	2	2	1	-6	-12	-14

Monthly temperatures at Everest Base Camp (EBC):

1. Which is the coldest month at Everest Base Camp? _____
2. Which is the warmest month at Everest Base Camp? _____
3. What is the difference between the min and max temperature in August? _____
4. What is the difference between the min and max temperature in January? _____
5. Draw in bars for the minimum and maximum temperatures in April.



6. At what time of day do you think the minimum temperatures were recorded? Explain your answer.

7. In how many months does the minimum temperature drop below freezing (0°C)? _____
8. Tick the statement which is **incorrect**:
 - The maximum temperature in July is the same as August.*
 - Everest Base Camp is coldest in January.*
 - The temperature at Everest Base Camp goes below freezing (0°C) in July.*

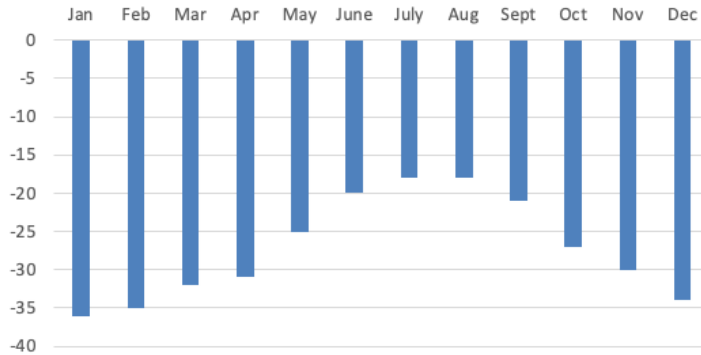
Extension: If you travelled to Mount Everest, what time of year would you go and why?

Activity 2:

Date: _____

LL: To understand the climate of a mountain environment.

Average temperature at the summit of Mount Everest



	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Temp (°C)	-36	-35	-32	-31	-25	-20	-18	-18	-21	-27	-30	-34

Use the information in the graph and table to answer the questions below:

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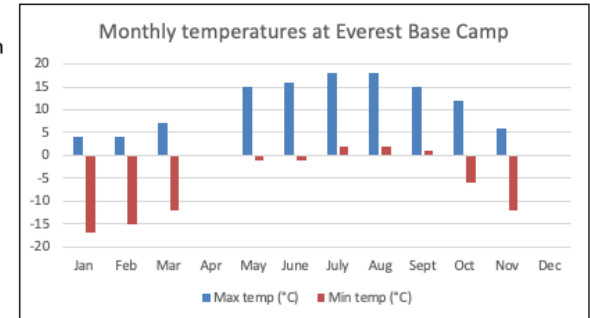
5. What is the difference in temperature between May and July? _____
6. By how far does the temperature drop from August to January? _____
7. Tick the **two** statements which are correct:
 - It is warmer at Everest's summit in April than March.*
 - The winter months are warmer than the summer months.*
 - The temperature at Everest's summit is below freezing (0°C) all year.*
8. What is the average annual temperature at Everest's summit? _____

Now look at the temperature data for Everest Base Camp and answer the questions:

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Max (°C)	4	4	7	10	15	16	18	18	15	12	6	4
Min (°C)	-17	-15	-12	-5	-1	-1	2	2	1	-6	-12	-14

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5. Draw in bars for the minimum and maximum temperatures in April and December.



6. At what time of day do you think the minimum temperatures were recorded? Explain your answer.

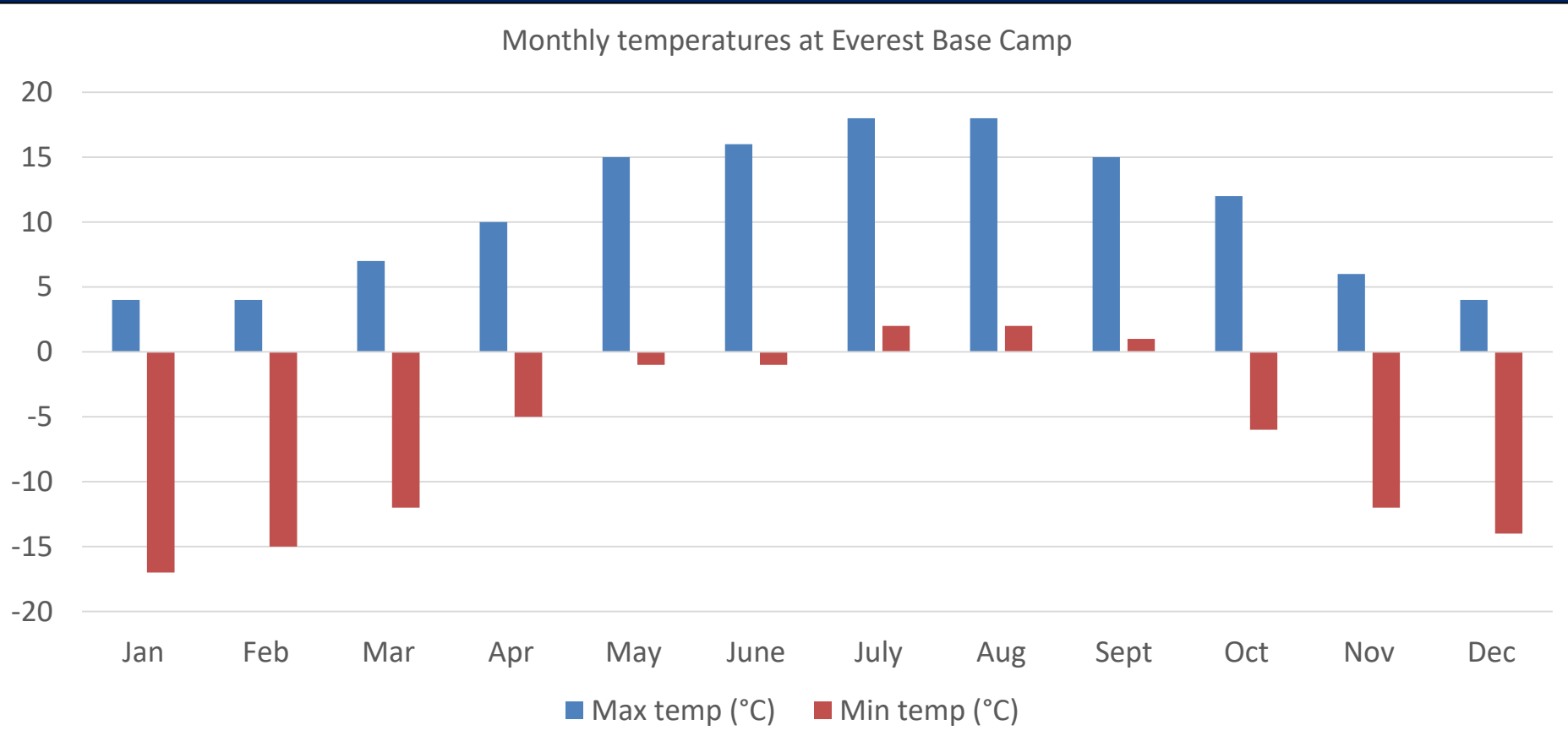
7. In how many months does the minimum temperature drop below freezing? _____
8. Does it ever get as cold at Everest Base Camp as it is at the summit? Explain your answer.

9. Which month has the biggest temperature range? _____

Extension: What are the average max and min temperatures at EBC? _____

Plenary

Look at the temperature graph for Everest Base Camp. If you travelled to Mount Everest, what time of year would you go?



Mount Everest is warmest in the summer months. Now take a look at this rainfall graph for Mount Everest. Would you still go in summer?

Plenary

Most of us will probably never make it to the top of Mount Everest.
But make sure you go hiking in the mountains one day...



In the meantime, if you want some inspiration, watch mountaineer [Elia Saikaly](#) taking the final steps to Everest's summit.