

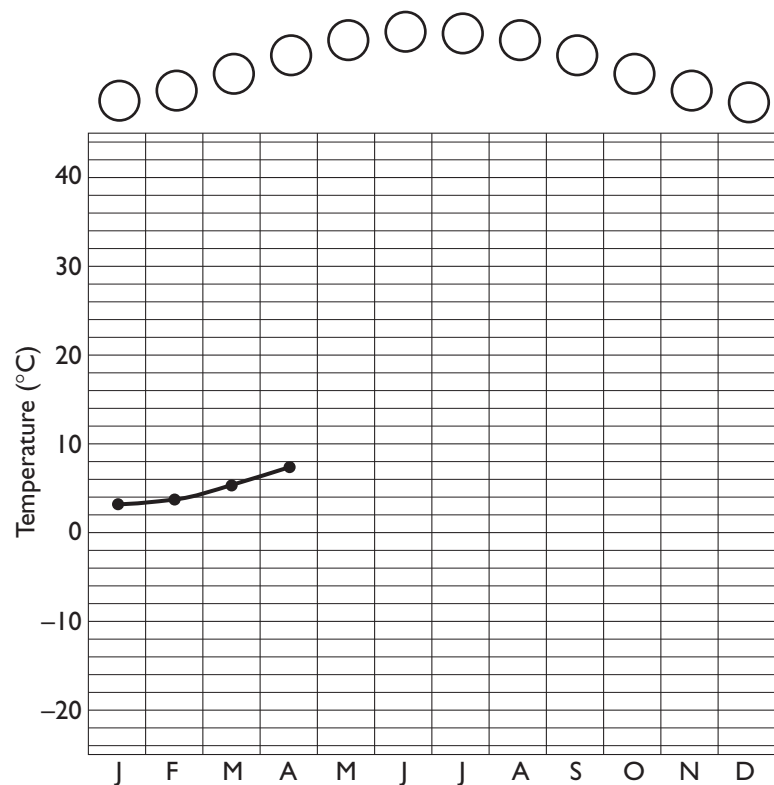
Places with hot and cold seasons (i)

This diagram shows the height of the Sun and also the average temperature for each month in Edinburgh.

▼ Table of average monthly temperature in Edinburgh, Scotland.

Month	Average Temp. (°C)
Jan	3
Feb	3
Mar	5
Apr	7
May	10
Jun	13
Jul	15
Aug	14
Sep	12
Oct	10
Nov	6
Dec	4

▼ Temperature graph and the height of the Sun for Edinburgh, Scotland.



Q1. Complete the graph on the right using the information in the table above.

Q2. Which month was hottest?

Q3. Which month was coldest?

Q4. How many months were there between the time when the Sun was highest in the sky and the hottest time of the year?

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Q5. Explain why the hottest month is not the same as the month when the Sun is highest overhead.

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Background

Worksheet 6B also provides questions on pages 14 and 15 of the student book.

Seasonality in climate can be introduced in two ways. It can be introduced to show how the rise in the height of the midday Sun is matched with the seasons, and it can be used to compare the nature of seasons in various parts of the world. The data given in the worksheet are to the nearest one degree for ease of plotting. Data to one decimal point are given in the table at the bottom of this page in case you need them.

In terms of the single station information, students will find that Edinburgh has its highest temperature in July (14.5°C/58.1°F) while the Sun is highest in the sky in late June (the summer solstice).

Students can think of a year in much the same way as a day, recognising that the lag between the Sun being highest in the sky and the warmest month has a comparable reasoning to the diurnal cycle.

It is useful for students to see that it is possible to identify similar patterns in a number of time scales in this way.

You can also examine the steepness of the line. Where the line is steepest, the temperature is changing most rapidly, so the change in the seasons will be more noticeable where the slope is steep – spring and autumn.

Suggestion: Use material from section 6 of this teacher's resource book (*Teaching weather around the world*) to compare Edinburgh with some extreme examples. Manaus in Brazil, for example, has a tropical rainforest climate and so shows an almost flat line, indicating that it has no temperature seasons. Chicago has a very steeply sloping curve, as can be seen in worksheet 6B. People who live in this part of the world notice the change between one week and another.

Month	Average Temp. (°C)
Jan	3.1
Feb	3.3
Mar	5.2
Apr	7.1
May	9.9
Jun	12.8
Jul	14.5
Aug	14.3
Sep	12.3
Oct	9.6
Nov	5.8
Dec	4.1

Britain is somewhere in-between, so we notice a change, but only from one month to another.

Now you can go on to look at other places and ask how quickly the temperature seasons change.

You could also examine season words, such as the American use of the word fall, for autumn. This is connected with the rapid change in leaf colour, and the rapid drop in temperature in autumn (see picture on page 14 of the student book). The word 'fall' is particularly associated with the north-east of the USA, where the colour changes are very dramatic, and this is, in part, the result of the change in temperature being far greater than we are used to. The time of prettiest fall, literally sweeps southwards across the country sometimes in a matter of 2 to 3 weeks.

Be aware that on page 22 of the student book we shall be looking at rainfall seasons. You might therefore, care to take the opportunity to point out that, when we say season we really mean temperature season. But it would be rather presumptuous of us to think that this is the only kind of season. More people live in places that have seasons dominated more by changes in rainfall than by temperature, as we shall see in later worksheets.

Answers

Q1. See finished graph below.

Q2. July

Q3. January

Q4. One month

Q5. The ground takes time to warm up on a seasonal, as well as on a daily, basis. (This is most obvious with oceans, which have a huge heat storage capacity.)

