Presenting Data

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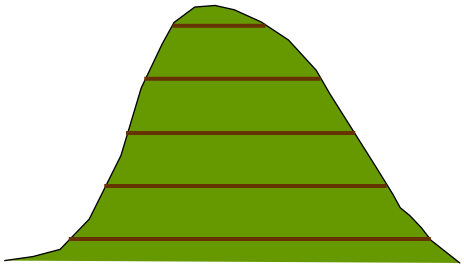
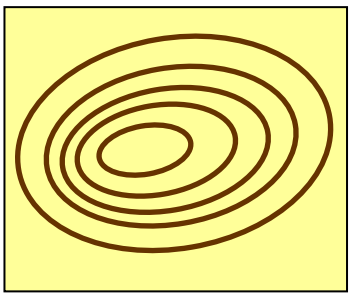
Starter worksheet

Cartographers (map makers) show the physical shape of the land by drawing **contour lines**. A contour line joins points that are all the same height above sea level.

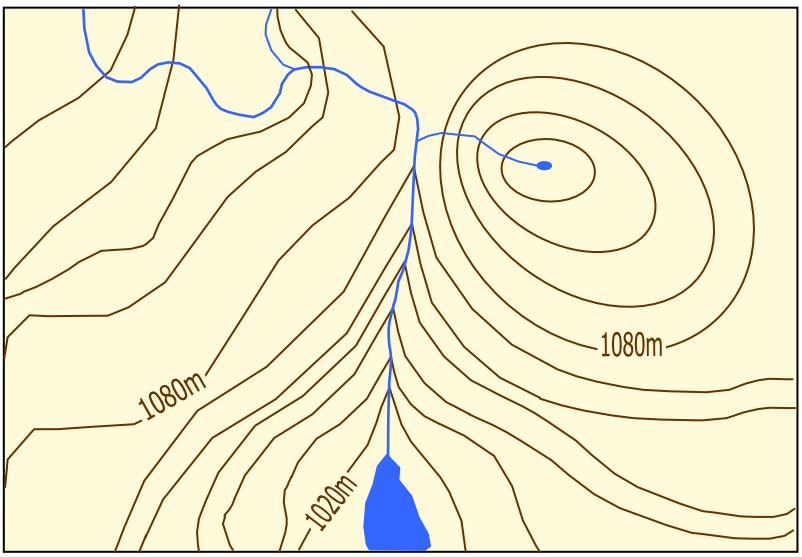
The map on the left represents the hill on the right. Every 10m increase in height, an imaginary circle has been drawn around the hill and marked as a contour line on the map. The map shows the lines as they would appear from above – if you looked down at the hill from an aeroplane.





Some of the contour lines are close together and some are more spread out. This is because some parts of the hill have steeper slopes than others.

Now try these questions about the map below:



1. Mark the 1050m contour line.
2. What is the height of the highest contour line? Mark it on the map.
3. The cartographer knows there is a farm at 1055m. On the map, mark one point the farm could be.
4. Developers are planning to build a new road in this area. The road must stay above 1078m and below 2000m. On the map, draw one route the road could take.

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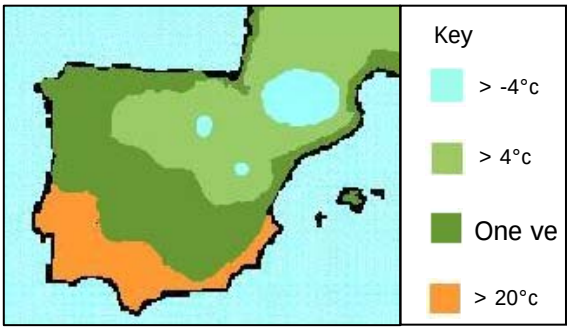
Core worksheet

Meteorologists (people who study the weather) study patterns in the weather to make forecasts. By drawing lines on their **weather charts**, meteorologists can find and display weather patterns.

Newspapers often publish weather maps, like this one of Spain and Portugal. Lines called **isotherms** have been drawn on the map. Isotherms join points with the same temperature.

The areas between the lines have been coloured to show areas of similar temperature. This makes it very easy to see the rough temperature of any place.



Drawing isotherms

Drawing isotherms on a map can be very tricky. One way to make it easier is to draw in a triangular grid. If you know the temperatures at the corners of the triangles, you can find the isotherms.

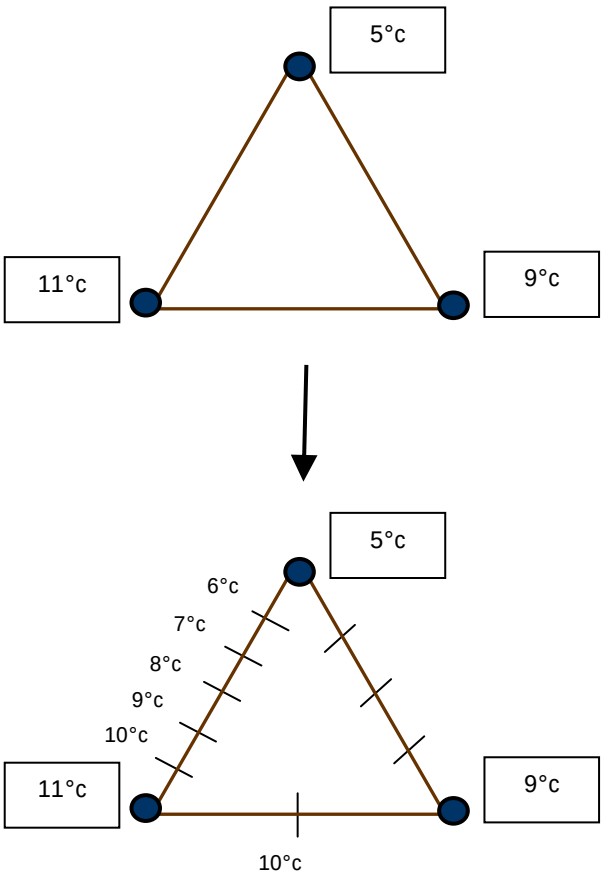
Look at this triangle. Somewhere on the line that joins 11°c and 9°c the temperature must be **10°c**. We can estimate that 10°c is halfway along the line.

We can use the same idea to mark the temperatures that lie on the other two lines – assuming that the temperatures are evenly spaced along the lines.

1. Finish marking in the temperatures on the bottom triangle.

To draw the isotherms, just draw lines to join all points that are at the same temperature. Two different isotherms never cross each other!

2. Draw the isotherms on the bottom triangle.



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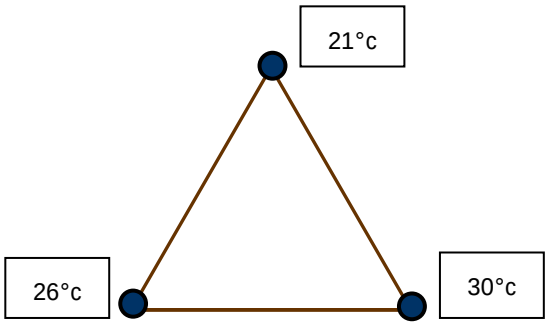
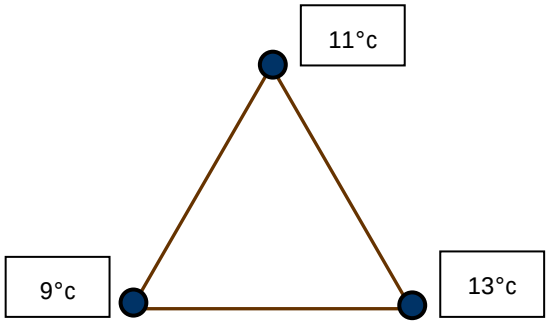
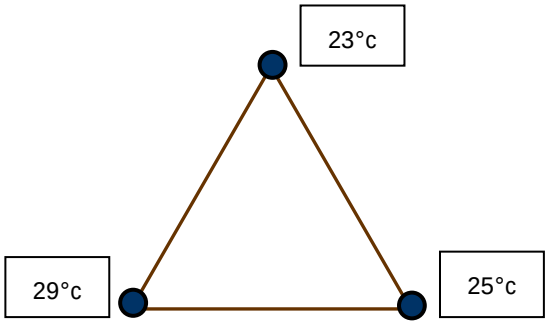
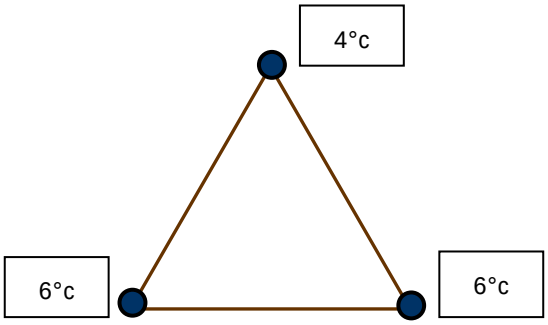
Core worksheet

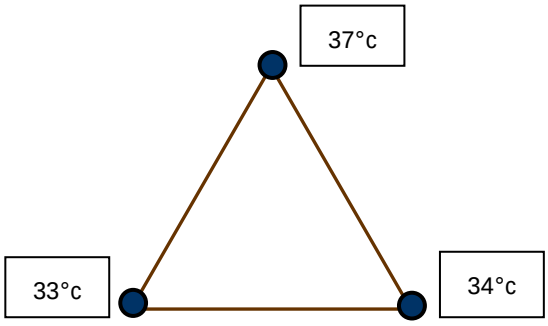
Using the information on the other sheet to help you, fill in the isotherms on each of the triangles shown.

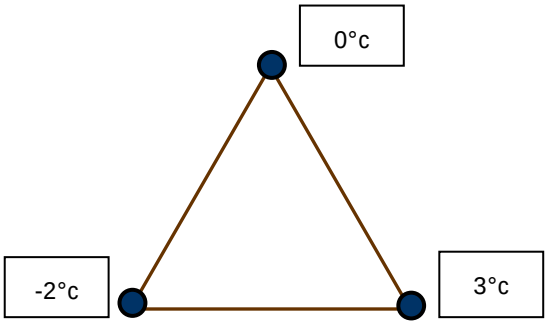












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Advanced worksheet

One very important thing that meteorologists study is **atmospheric pressure.** Atmospheric pressure is the force put on us by the weight of the air. It is measured in **millibars**.

Different weather conditions change atmospheric pressure. By displaying atmospheric pressure on weather charts, meteorologists can see these changes and forecast the weather.

Meteorologists draw lines to join points of the same pressure.

The lines are called **isobars** and they are marked every **4 millibars**.

Can you draw the isobars on this map of Europe?

You will need to draw the 988, 992, 996, 1000, 1004, 1008 and 1012 isobars. Remember: no isobar ever crosses any other isobar.

A triangular grid has been drawn to help you. There are pressures marked at the corners of this grid. You might find it helpful to find where each isobar crosses the grid lines.