Pressure map.

The second map shows pressures – each black dot marks a weather station (in exactly the same place as the previous map) and the number next to it are the pressure values. Your task is to draw the 1016, 1012, 1008 and 1004millibar isobars (lines of constant pressure). However, to save space on the map, the pressure values have been recorded in shorthand – so 9 or 09 is short for 1009mb, 11 is short for 1011mb etc.

On this map, we have some extra clues - these weather observations indicate the wind speed by the tail on the symbol. The wind is blowing from the tail of the arrow to the centre (the bars on the tail of the arrow tell you the wind speed) so  is a wind blowing from the west to the east, or  is a wind blowing from the east to the west. The wind tends to blow along the pressure contours, so your contours need to be roughly parallel to the tails on the closest weather symbols.

How to start:

- Start with the 1016mb contour. Where on the map are there places where the pressure is higher than that? If it helps, colour in those symbols where the value is greater than 16. Your pressure contour needs to divide those symbols from the others.
- Now use a different colour to shade the symbols where the pressure value is 13, 14 or 15. Can you now draw the 1012mb isobar?
- Again, use a different colour to shade the symbols where the pressure value is 9, 10 or 11. Can you now draw the 1008mb isobar?
- Lastly, is there anywhere where the pressure is under 1004mb? If so, draw the 1004mb contour to separate off that observation from the others.

Isobars are lines of constant pressure. Drawing the isobars reveals features (eg highs, lows, ridges and troughs) which help us understand the weather. When trying to draw isobars, remember:

- The symbols on the map give the observed pressure and wind speed and direction. Remember that the wind is blowing from the tail of the arrow to the centre. The bars on the tail of the arrow tell you the wind speed.
- The wind blows almost parallel to the isobars (they actually blow slightly more towards the centre of the low pressure area).
- Isobars tend to be parallel to each other, are as smooth as possible and never cross.
- The closer the isobars are to each other, the stronger the wind. You can use the bars on the tail of the weather station symbol to give you the Beaufort force of the wind.

These two maps both correspond to the same weather situation, with the weather stations in the same places. Can you work out what is going on?

Clues:

- Where is the pressure the lowest?
- How is the wind direction changing across the map?
- You can use both maps to see where the cold air is pushing into the warm air (a cold front) or whether the warm air is pushing into cold air (a warm front).