

## Mean Temperatures

**Time:** 1 hour

**Introduction** Temperatures in Antarctica are extremely cold, much colder than the UK. At the South Pole, it is always well below freezing and in the winter months from April to September it is close to  $-60^{\circ}\text{C}$  every day.

### Learning Objective:

To understand what average temperatures are for each month of the year in the UK and South Pole and how they differ. To calculate differences in temperatures, using positive and negative numbers.

### Resources:

1. Thermometer worksheet (available on [www.2041.com](http://www.2041.com))
2. Temperature charts x 2, one with figures to one decimal place.

- 1 Show the class a thermometer and teach them how to read the temperature gauge from  $20^{\circ}\text{C}$  to  $-60^{\circ}\text{C}$ . Tell the class that they will be comparing temperatures between the UK and the South Pole.
- 2 Hand the Thermometer worksheet to the children and ask them to transfer the UK and South Pole average temperatures for each month to the printed thermometers. Ask the children to use different colours for each place to make it easier to see the difference between the average monthly temperatures in the UK and the South Pole. The worksheet contains the average temperatures for 2006 (the hottest year recorded in the UK) with the temperatures rounded up/down to one decimal place.
- 3 Next ask the children to work out the difference between the two average temperatures. What do they notice? When is the temperature difference greatest / least? Can they order the differences from greatest difference least difference? Are there any patterns that emerge?
- 4 Using the Met Office website, the children could also do the average monthly figures for 2007 and compare them with 2006 or the year they or their parents were born and 2006.

#### UK Average Temperatures for 2006

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temp C	4	4	7	11	15	18	15	15	15	12	7	6
Temp C	3.9	3.5	3.9	7.4	10.7	14.5	17.8	15.0	15.2	11.7	7.3	5.5

#### South Pole Average Temperatures for 2006

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temp C	-28	-41	-54	-57	-57	-58	-59	-60	-59	-51	-38	-28
Temp C	-28.2	-40.9	-54.4	-57.3	-56.5	-58.4	-59.2	-59.7	-59.4	-51.1	-38.3	-27.5

For information on UK average temperatures, look at the Met Office website on [www.metoffice.gov.uk](http://www.metoffice.gov.uk) and click on UK statistical summary under Mean temperature - you can download the whole series from 1914!

### Differentiation

Using a calculator, ask the class to work out the average temperature for the whole year by adding together the monthly averages and dividing by 12.

Using the statistics on [www.metoffice.gov.uk](http://www.metoffice.gov.uk), compare UK temperatures at ten-yearly intervals, going back from 2006. Ask the children to create a table and put in the figures for each month of the year with each row representing results going back 10 years at a time - 2006, 1996, 1986, 1976, 1966, 1956. What is the difference for each month? Note whether the temperature is less or more and put that figure in e.g.  $-3$  or  $+4$ . Are there any patterns that emerge that show that climate change is happening?

### Success Criteria

1. The children can go from positive to negative numbers and can work out the difference between the two.
2. The children can appreciate the significant difference in temperature between the UK and the South Pole.
3. The children start to develop an awareness of how climate is changing by relating current average temperatures to those of the past.