Cape Farewell Science Lesson Plan
OCR GCSE 21st Century Science
Year 10 C1 Air Quality

This lesson plan written by Keith Brindle is adapted from the OCR Scheme of Work for the first GCSE Chemistry Module C1: Air Quality.

During the second lesson of the module pupils collect air quality data from two sites: a local site and a second site (usually geographically different location) as part of Activity AC 1.1. The data is downloaded from website www.airquality.co.uk. The parameters measured include, particulate matter (PM10), NO2, O3, and SO2.

Starter

1. Look at the website for the Zeppelin site is www.nilu/niluweb/services/zeppelin.

2. This site will be visited by the Cape Farewell Youth Crew between Saturday the 15th and Friday the 21st of September.

3. A Google search for the 'northern most webcam in the world' the first site listed will be a regularly updated image of the a webcam at the Zeppelin station looking down the onto the Ny-Alesund research centre and the bay where the Noordelicht will be docked.

4. A Google Earth search of Ny-Alesund will show the area that the Cape Farewell Youth Crew will be undertaking science research.

Main Activity - Requires ICT room

In this adapted lesson a third set of air quality data covering the same parameters and over the same time period as the first two data sets can be added, from the Zeppelin Weather and Atmospheric Monitoring Station in Svalbard in the Nordic Arctic.

The following questions can be asked:

1. Which of the 3 sites has the highest concentration of pollutants (or a given pollutant). Why do you think the site identified is the most polluted.

2. Are the 24 h trends for the 3 sites similar? How can you tell? Explain the reason for the differences.

3. Which of the 3 sites more closely represents the global contribution made by man to the earth's atmospheric composition? Explain your reasoning.

4. Where are the pollutants monitored at the Zeppelin station coming from?

Plenary
Suggest to the pupils that the data they have gathered is going to be used as part of an infomercial on air quality. Look at ways that the graphical data produced could be more imaginative presented. (This could be followed up with a further lesson to complete the task of producing such an infomercial.)

Assessment for Learning
Data handling
Data analysis
Graphical representation
Data interpretation