



Sustainable Development Goals in Education

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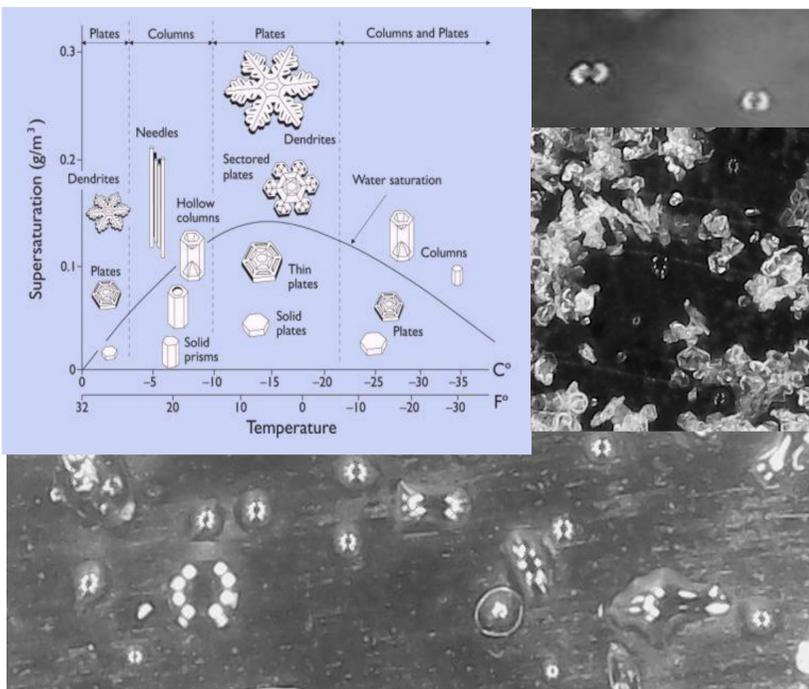
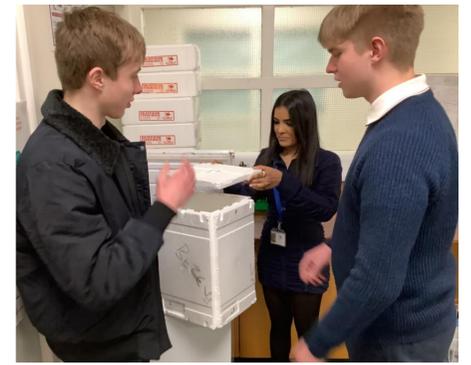
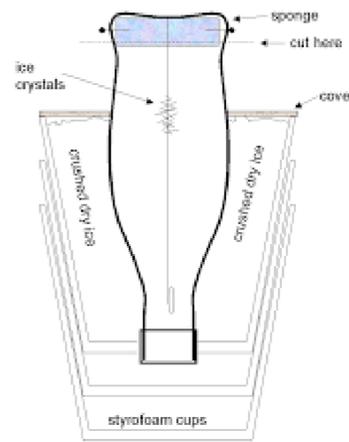
Snowflakes and Climate Change

The impact of climate change on our environment is becoming more evident in the increased number of events of extreme weather reported over the last decade. Snowfall is set to increase as the levels of humidity and carbon dioxide increase across the world. Using the concept of snowflake formation our project aimed to investigate the changes in climate indicators on snowfall.

Our project has developed a low-cost system for producing snowflake dendrites in the laboratory using everyday equipment.

The first part of the project involved creating a supersaturated humid environment, which can be cooled to between -5°C and -15°C using a salt/ice mix or dry ice.

Using a length of cotton as a nucleation site for the snowflakes to grow on. Over a period of 10-15 minutes crystals can be visualised by eye or with a microscope app on their mobile phones.



Increasing the carbon dioxide level increases the formation of prisms and columns.

The students have designed a growing chamber for investigating the differences in size and shape of the snowflakes with differing atmospheric conditions.

The students have designed the chamber using CAD software and 3D printing in DT. They have also designed, constructed and programmed sensors for carbon dioxide, humidity and temperature to monitor the conditions within the chamber. The formations were then visualised using a USB digital microscope linked to a laptop.

Snowflake formation can be used to investigate climate change in the laboratory.