

WEATHER AND CLIMATE IN THE CURRICULUM

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Jennifer explains how her passion for teaching about weather and climate led her to develop an extended unit of work with fieldwork opportunities and data collection built in.

Introduction

I am a year 4 class teacher and the geography co-ordinator at Burlington Junior School in New Malden, Greater London. At university, I studied geography as an undergraduate, and climate and meteorology for my Masters because I am passionate about these subjects. In this article I demonstrate the merits for including weather and climate in primary geography in ways that go beyond National Curriculum expectations.

Most people are interested in the weather because it forms part of our everyday experience. I follow the weather forecast religiously on television, radio and my mobile phone. It is topical: giving primary school pupils a background in climate and weather will allow them to follow current events, such as hurricanes and climate change, with greater understanding. Here, I provide ideas about how to plan a topic on weather and climate; indicating how rewarding the topic is when practical aspects are added and geography is meaningfully linked to other subject areas.

Planning the weather

Given the opportunity to update our school's geography plans, I could not resist adding an extended, practical, weather and climate topic into the curriculum. The weather is part of pupils' everyday life, so it is easy to access and engage them through fieldwork. Weather and climates lend themselves nicely to working at different scales, including collecting weather data at a local level and learning about climate zones and biomes at a global level (Figure 1).

Introducing the topic in year 4 will allow pupils to apply their knowledge of weather and climate to topics covered in later years. It also complements other subjects in the year 4 curriculum including 'States of matter' in science (when pupils look at the water cycle)

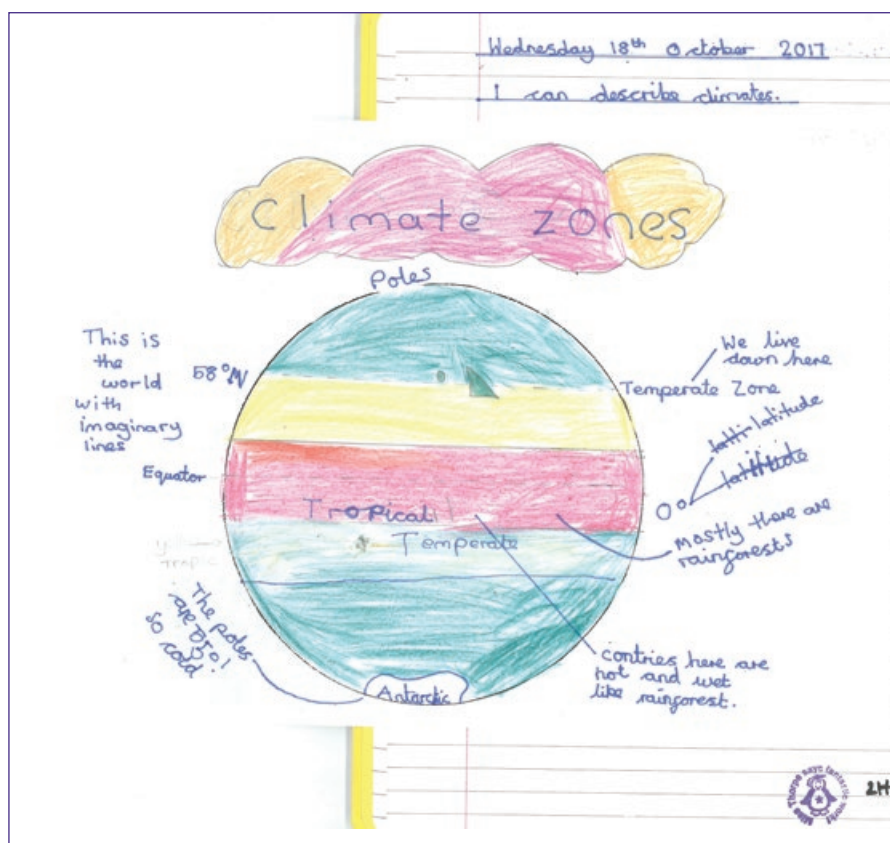


Figure 1: A weather and climate topic can extend from investigating weather at a local scale to learning about climate zones at a global scale.

and 'Measurement' in maths. The primary maths curriculum specifies that pupils use measuring instruments with accuracy and make connections between measure and number; thus, weather provides an ideal context.

Timing and skills

Teaching the topic in the first (September) term coincides with the hurricane season in the Atlantic, and our lesson on wind speed (Figure 2) coincided with Hurricane Irma (Figure 3) making landfall (when a storm moves over land after being over water), meaning the knowledge learned was particularly topical.

The best thing about this topic, however, is that it allows teachers to cover many of the skill requirements of the key stage 2 curriculum. We used interactive Earth Wind maps (see web panel) to track Hurricane Irma, the playground compass to measure wind direction, a map of the UK as part of a weather forecast presentation, and globes and atlases to locate countries



Figure 2: Our lesson on wind speed and the Beaufort Scale coincided with Hurricane Irma making the news, providing a topical reference for pupils' learning.



Figure 3: The eye of Hurricane Irma is clearly visible from the International Space Station as it orbited over this Category 5 storm on 5 September 2017. Image © NASA.

in different climate zones and biomes. The most fruitful aspect of this topic was the opportunity for fieldwork: the first three lessons included time spent outside the classroom collecting weather data.

Practical fieldwork

We borrowed instruments from the Royal Meteorological Society for free. These included a digital anemometer, digital



Figure 4: The pupils made their own Okta grids to measure cloud cover. Photo © Jennifer Thorpe.

'I enjoyed it when we used paper to make an Okta grid.' (Daniel)
 'I enjoyed the different things we tried to use to tell the weather.' (Luana)
 'I liked using the weather instruments.' (Amelie)
 'We learned about climate and how few people live in the desert or polar zones.' (Sebastian)
 'I enjoyed going to Kew Gardens because we used some of their equipment and we played a game inside the greenhouse.' (Akshaya)
 'I learnt that at the top of the world the temperature could be minus 55 degrees Celsius.' (Friday)
 'I enjoyed doing a weather presentation.' (Friday)
 'I learnt that if you suck your finger and stick it up in the air it will tell you what way the wind is blowing.' (Minal)

Figure 5: A sample of pupil feedback on the weather and climate topic.

infrared thermometers, a rain gauge and two USB temperature data loggers. The pupils enjoyed using the infrared thermometers to zap objects in different locations around the school. Some pupils worked out that they could measure the temperature of clouds and became very excited by the cold temperatures they were able to record. We also made our own Okta grids to measure cloud cover (Figure 4).

To complement the topic, we organised a trip to Kew Gardens. The pupils measured the soil temperature, light, air temperature and humidity in the gardens at Kew (as a temperate climate) and compared the results with similar measurements taken inside the Palm house (a Victorian glasshouse, which represented a tropical climate). The pupils also took the opportunity to observe and draw conclusions based on these 'climate zones'.

What next?

I conducted a survey to find out what aspects they enjoyed and were most memorable for the pupils (Figure 5). Next year, I will make various improvements to the planning and will use an enquiry question to drive the weather and climate topic, such as: 'Why is it always raining in New Malden?' or 'How is the weather in New Malden different from the rest of the world?' I am aware that using a question that relates to the pupils' home area should help engage them further. We can spend the first lesson discussing how the pupils can go about answering this key question. Subsequent lessons can be linked to questions that support this investigative approach (e.g. 'How can we measure different aspects of the weather in New Malden?', 'How much precipitation do we get in New Malden?' and 'What would it be like to live in Svalbard?').

Practicalities

Lots of resources are available to support a topic in weather and climate – from computer software to loans of recording instruments. The Royal Meteorological Society has lots of ideas about how to make your own instruments, including a pine cone weather station (see web panel). You could set up a weather station in your school grounds and a 'Weather and climate club' to encourage budding meteorologists to collect and analyse data (but this can cost upwards of £1000).

Weather and climate is a topic that is inherently scientific, geographical and mathematical and one that pupils will easily engage with, because it is so relevant and topical. This makes the topic an excellent addition to any primary school's curriculum.

WEB RESOURCES

Earth Wind maps in real time: <https://earth.nullschool.net/>
 Instrument loans: www.metlink.org/observations-and-data/instruments/
 Measuring Cloud Cover resources: www.metlink.org/wp-content/uploads/2013/11/science_weather/clouds_resources.pdf
 BBC News report Hurricane Irma: www.bbc.co.uk/news/world-latin-america-41172545
 Weather stations: <http://weatherstations.lgfl.org.uk/>

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