Geography: Recording and Analysing the Weather

Your aim is to record and analyse the weather over 7 consecutive days.

You may use both primary (data you collected yourself) and secondary (researched data) methods of monitoring and understanding weather conditions

Primary:
- Using weather instruments (you can make some of these yourself!)
- Making observations. You can design score systems for example 1-5 for something.

Secondary:
- Use data from the Met Office website. This has synoptic charts monitoring different weather conditions passing us e.g. fronts.
- The BBC website has some radar, satellite and surface pressure maps too which can help when trying to understand different weather conditions.
- Media - watching the news each day will also give you additional information

This tasks should take 4 distinct steps:

1 – Planning. *Write some notes for each bullet point.*

- Where will be the best place to take the measurement from? Do you have a garden? A local open space?
- What measurements will you take? This website has some excellent ideas for homemade equipment https://sciencing.com/easy-homemade-weather-instruments-kids-7974126.html
- Is there any secondary data that you could collect? You could use one of the following websites: https://www.wunderground.com/ https://www.metoffice.gov.uk/ https://www.oxfordclimatesociety.com/blog
- Are there any *qualitative* measurement that you could take, for example could you take a picture of the same view each and as say how it changes? Qualitative means data that does not have a number for example a photograph, sketch, observations and words to describe things. Most data you collect will be *quantitative* which means it uses numbers.
- What time of day will you do it? Can you make sure that the recording are always taken at the same time of day? Why would this help?

Useful websites to explore:
- https://sciencing.com/easy-homemade-weather-instruments-kids-7974126.html
- https://www.wunderground.com/
- https://www.metoffice.gov.uk/
- https://www.oxfordclimatesociety.com/blog
- https://www.bbc.co.uk/weather

2 - Carrying out your measurements and presenting your data

- This will take dedication to ensure that they are accurate.
- You must try to keep your method the same each day. Why?
- Record you data accurately. You could use the table below to record your data but it is just a guide of things that you *could* include. It would be even better to amend this data collection table or design your own!

Day (date)	Cloud Coverage and/or type	Temperature	Precipitation	Wind speed and/or direction	Air pressure	Photos to show visibility (what does the photo show)
1						
2						
3						
4						
5						
6						
7						

3 - Analysing your results. *Write some notes for each bullet point or write this up in an essay.*

- Are there any patterns in the weather data you collected?
- Can you link your finding to changes in air masses?
- Did your area experience an anticyclone or depression during the time you collected the data? N.B. your remote lesson at the end of June will help you with knowledge for this.

4 - Evaluating your method and findings

- *Answer the following question:* **Describe the methods you used to collect weather data and comment on the limitations of these methods. (15 Marks).**
- You can present this in any way your wish (a written essay, video, audio file, power point or poster for example) but it must include all of the information needed in the mark scheme provided. Attached is an example of a 11/15 mark written response to help you to understand what you are aiming for.

Good luck and please ask your teacher if you need any help.

Email your completed work (the data recordings, analysis and evaluation) to your teacher:

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Model Answer:

I completed a weather diary during over a 7 day period; the location for the study was 11 Cherry Tree Lane, Watford WD2 3RA.

There were a number of different techniques that were used to measure the weather at this time these ranged from quantitative methods such as temperature measurements, air pressure, wind speed, cloud cover and wind rainfall to qualitative data such as photograph and describing the feel of the weather were also used. Primary data was collected where possible as this gave a measurement for the specific location and would have picked up on minor local variation. It was not possible to collect all of our data due to lack of resources so at times secondary data had to be used. However in some cases this secondary data from sources such as "metoffice.co.uk" may have been more reliable as large averages can be calculated and higher quality equipment is used. The main ways of recording the weather were temperature recording, photographs to show visibility, cloud cover and precipitation.

The temperature recording were collected using the thermometer on my mobile phone this gave a measurement in 0C. This was an example of quantitative and primary data collection. When taking this measurement it was really important that the phone was held in the same way for each measurement so that my body temperature didn't affect the results. The technique may be limited as the temperature on my phone is not that accurate and has not been calibrated since I brought it. It is also possible that errors occurred as I didn't necessarily remember where to stand in the same place each day so small changes could have affected the results.

Photographs were used to show the visibility for each of the days the weather diary. This was done by taking a photo at the same spot for each day and then describing what can be seen from the photo. This was a qualitative data method but the data was also primary as it was collected in person. The main issue with this method is that it was very subjective and results could change depending on who is looking at the photo.

Cloud cover involved the collection of primary data. To calculate the amount of cloud I mentally divide the sky into 8 equal sections. I then estimated how many of those eights would be covered if all of the clouds were pushed together into one area. This gave a proportion out of 8 and is there for qualitative data. There were a number of limitations with this method; it only gave a very rough guide to how much cloud there was in the sky as it was difficult to divide the sky up in this way. It was also a very subjective method as two different people looking at the same sky could come up with different results. However as I was taking the results each day there should have been some more consistency.

Precipitation was collected from qualitative secondary data from http://www.metoffice.gov.uk/climate/uk/stationdata/. The met office has a weather station at Heathrow. Rainfall data is collected using a rain gauge, which are round cases that are placed on the ground and collect any precipitation that has fallen into a reservoir at the base. The rain gauges are carefully designed to get very accurate data, even to the extent that the rim is designed in a way to split raindrops in half if they fall on it. However there was a major limitation in the fact that this data was collected in Heathrow 20 miles away from the location the rest of the data was collected in.

Overall the precipitation data was likely to be the most accurate even though it was not taken in the study site. The cloud cover study is likely to have produced the most unreliable results due to the subjective nature of the methodology. Although there were limitations in the use of photographs to assess cloud cover it did add useful data that enables information about the more general conditions to be gathered.