

How accurate is the weather forecast?

Context	As well as meteorological lessons, studies of day-to-day weather conditions fit into many other geographical topic areas including the water cycle and ecosystems. With an emphasis on data handling, students can gain a lot from trying to measure the weather conditions and discussing accuracy of both their own readings and advanced forecasts.		
Length of time	One or two lessons	Suitable locations	School grounds
Equipment needed	A selection of weather recording equipment, though not necessarily all of: rain gauge, anemometer, cloud chart, maximum-minimum thermometer, weather vane		
Suggested delivery		Key Skills and Objectives	
<p>Students should be introduced to the different pieces of fieldwork equipment prior to their use and given an opportunity to handle each and test their use. At a set, pre-established time, students can then take a variety of weather recordings (detailed below) and compare their data with those found on a suitably detailed online forecast.</p> <p>Alternatively, students can write a weather diary for a week, detailing basic weather conditions they experience (temperature, precipitation, wind) each day.</p> <p>Precipitation</p> <p>A suitably placed rain gauge will collect any precipitation that falls over a twenty-four-hour period. Depending on the design of the rain gauge, students can read the depth of the water straight from the gauge or calculate the depth by using a standardised measuring cylinder.</p> <p>Wind</p> <p>Students can hold a digital anemometer above their heads in an open space and record the average wind speed over a period of one minute. A weathervane (mounted on a tall building can be read by students to show the direction of the prevailing wind).</p> <p>Cloud cover and type</p> <p>Students can use an okta scale to say what percentage of the sky is covered in cloud. They can also use cloud charts (such as those supplied by the Royal Met Society – link below) to identify different cloud types they see (and importantly how high they might be).</p> <p>Temperature</p> <p>A suitably placed maximum-minimum thermometer can be read once a day at the same time of day and the maximum and minimum temperatures observed for the previous twenty-four-hour period can be recorded.</p> <p>On return to the classroom, students should comment on how accurate their recordings might be and the factors that might affect whether their results are reliable.</p> <p>Students should then download the same data from a reliable weather prediction website such as Yr No (link below). Students can either describe the key differences between the predicted weather and the real weather data or they can draw a series of comparative charts, placing forecast data and real data on the same axes. If students are working in groups they could each use a different weather forecasting service and students can compare their findings to suggest which service might be the most accurate.</p>		<ul style="list-style-type: none"> • Understanding how human error and equipment error might create layers of inaccuracy in weather readings. • Recording a variety of quantitative data and using a variety of data presentation techniques to compare actual data with forecast data. • Using comparative language to draw distinctions between forecast and real weather data (as well as points of consensus between the two). 	
Potential risks to consider	<ul style="list-style-type: none"> • Students should avoid staring directly at the sun while conducting cloud surveys. • Students should not record weather conditions outside during extreme weather events such as an electrical storm. 		
Possible follow-up activities	<ul style="list-style-type: none"> • Using synoptic charts, available online, students can try to predict how the weather might change over the week between lessons, linking their ideas to areas of high and low pressure they can see on the chart. 		
Useful links	Yr No (Norwegian weather forecast service) https://www.yr.no/en Royal Meteorological Society Cloud chart https://www.metlink.org/fieldwork-resource/cloudwheel-cutout/		

These resources have been created by the Fieldwork and Outdoor Learning Special Interest Group.