



Dark Skies Activity Card 2

Measure light pollution using technology



Location: School playground, field or garden (away from bright lights)

Time: 30 minutes

Audience: KS2

Timing: End of January to beginning of February when the moon is at its weakest and it gets dark early; www.moonconnection.com/moon_phases_calendar.phtml

Equipment: A torch with a red light to allow you to see and move around safely, yet still preserve night vision (this can be made by covering a torch with a brown paper bag or a red balloon with the neck cut off); a Unihedron Sky Quality Meter (SQM); paper and pencil; and warm clothes!



Picture of the Sky Quality Meter www.unihedron.com

Activity:

Before taking your readings, first make sure the sensor/faceplate has been wiped and is clean. You should leave the SQM meter outside for at least five minutes before taking any measurements so it adjusts to the outdoor air temperature.

After you've done this, point the SQM so that sensor/faceplate points toward the sky directly above you (known as the zenith). Press the red button once and release.

Under urban skies, a reading will be displayed almost immediately. Under the very darkest conditions (no moon in the sky, far from building lights) the SQM may take up to a minute to complete its measurement. Please do not move the SQM until the reading is displayed. Take a total of ten readings approximately three minutes apart. Ensure each reading is taken from exactly the same location and the Sky Quality Meter is always pointed directly upwards. Please note down each of your ten readings produced by the Sky Quality Meter and then calculate an average by adding them all up and dividing the total by ten. **To print recording form please visit www.highweald.org/learn-about/education/education-resources**



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What other information should you collate?

Also, be sure to record the date and time at which you make your recordings, as well as the location (either in the form of a postcode, but preferably in the form of latitude and longitude coordinates). The simplest way to find the latitude and longitude coordinates of your recording location is by using Google Maps. (Instructions for this can be found in the Dark Skies Teacher Resource Pack).

What do you also have to consider?

Although you should only record if the sky is clear and free from interfering cloud cover, it would be helpful if you could estimate the level of any cloud cover that is present using the scale below:



Clear



Quarter of the sky



Half of the sky



More than half the sky

What do your results mean?

The higher the number produced by the Sky Quality Meter, the darker the sky. A reading of 22 or above is highly unlikely in this part of the country, and would only be recorded in an uninhabited area almost totally free of light pollution. In contrast, a reading between 18 and 19 is what you would expect in a city or other heavily light polluted urban area. Measurements between 19 and 22 are much more likely in the High Weald, with anything approaching 22 being a very dark rural sky in which the details of the Milky Way are clearly visible.

Where can you get a Sky Quality Meter?

The High Weald AONB Unit has two SQMs you can borrow for free. E:info@highweald.org

